FAA Aviation news

SEPTEMBER 1997

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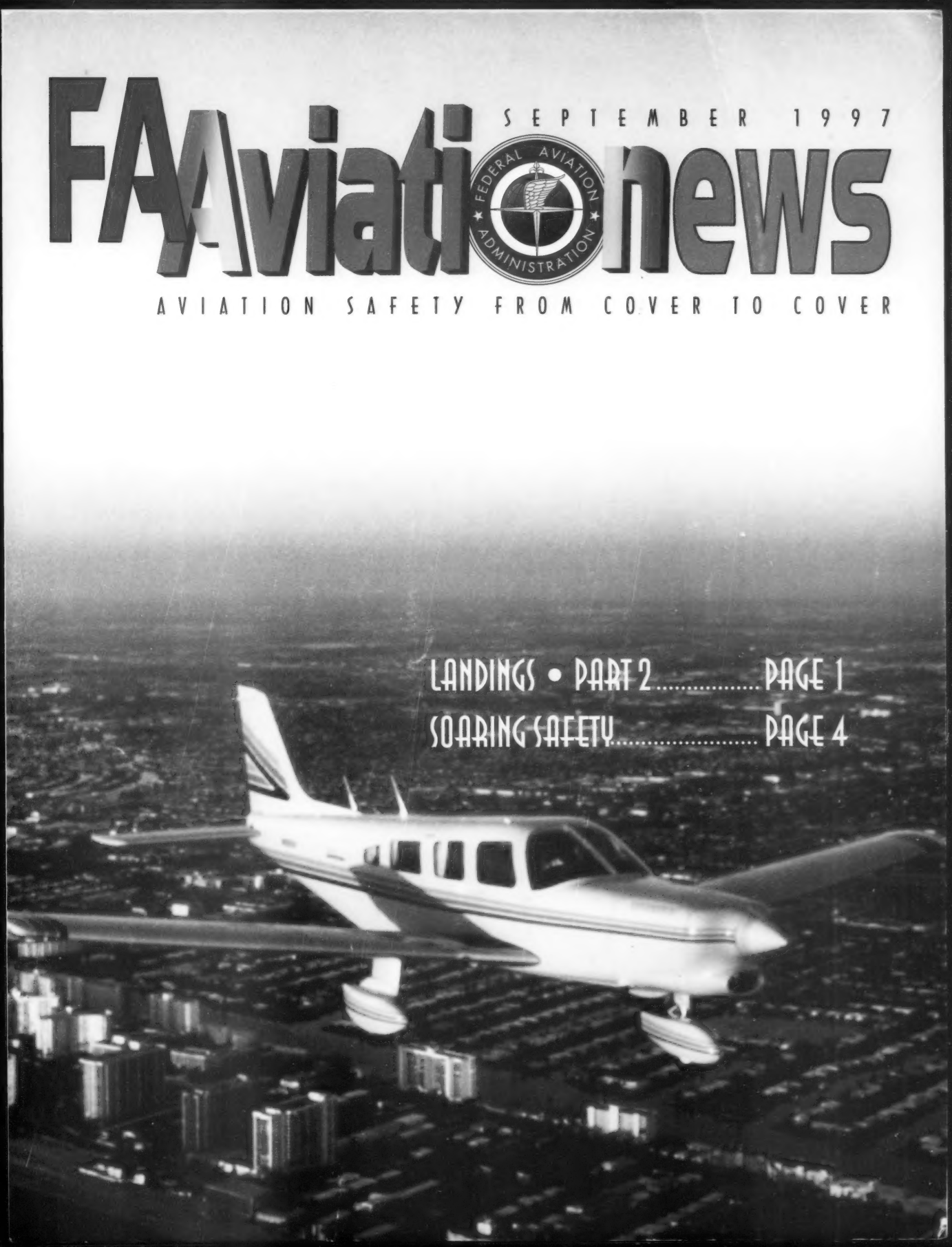

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The Office of Management and Budget has approved the use of funds for the printing of FAA AVIATION NEWS.

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CHANGE OF ADDRESS OR SUBSCRIPTION PROBLEMS: Send your label with correspondence to Sup Doc, Attn: Chief, Mail List Branch, Mail Stop: SSOM, Washington, DC 20402–9373. Or call GPO Customer Service at (202) 512–1800/6; FAX: (202) 512–2168.

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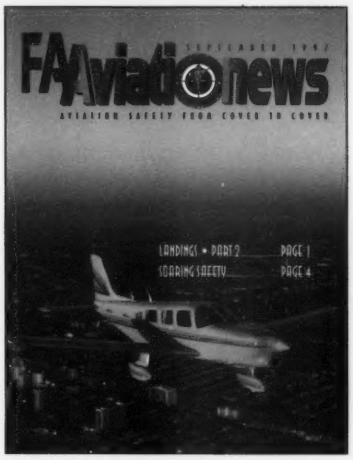


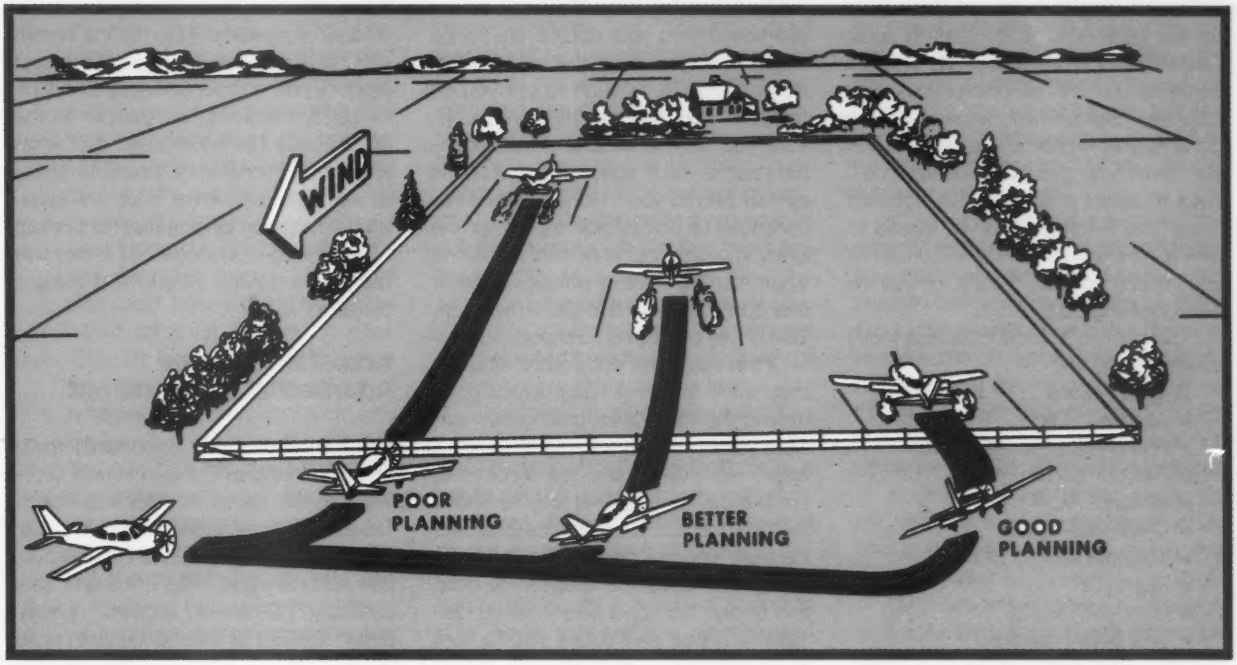
FRONT COVER: 1981 Turbo Saratoga takes a closer view of a warm, autumn sunset.
BACK COVER: Washington National Airport's new terminal with its "Jeffersonian" domes opened on July 27. Building in foreground is 5,000+ space garage. Moving sidewalks carry passengers from the subway system to the new facility with its restaurants and retail space.

Winner of the National Flight Standards Service Excellence in Public Awareness Award
FAA Aviation news

FEATURE

by Phyllis Anne Duncan

WHERE ARE YOU GOING TO PUT IT?



Remember the first time during your primary instruction when the instructor reached over and retarded the throttle to idle and said, "You just lost your engine."

In the back of your mind you were thinking, "The instructor's not going to let anything happen. This isn't for real." How many times did you reach for the throttle, still held by the instructor, to add power to control your descent and remember that you were practicing a *simulated emergency landing procedure*?

During primary instruction practicing emergency landing procedures helps a pilot develop confidence, planning, judgement, accuracy, and technique to deal with a real engine-out event with subsequent on- or off-airport landing. A good instructor "cuts" the engine to simulate an emergency during cruise, takeoff, and at any point in the landing pattern—all at a safe altitude and within the operating limitations of the aircraft. The emphasis is to practice the procedures sufficiently so that the process becomes a smooth and natural one for the pilot. And face it, if you can set yourself up to make the emergency field you selected during a simulated emergency, you are more likely to respond similarly in a real one. That's why emergency landing procedures are an integral part of pilot training and the practical test for certification.

But—when was the last time you practiced emergency landings? When you got ready for your last checkride? Your last flight review? The most recent phase of the WINGS program?

The "beauty" of simulated emergency landings is that you can practice the procedures—at least the steps involved in establishing and maintaining best glide speed and following the appropriate checklist—any time at altitude and without the added pressure of an actual emergency. If one does occur, you'll be *proficient* enough to handle it.

When you do practice these procedures at altitude, you're not likely to need an instructor along, but the constructive criticism of your technique the instructor provides is always beneficial—not to mention the instructor working as your safety pilot, who possesses an extra set of eyes to watch for other traffic.

Simulated Emergency Landings

At the point when the instructor "declares the emergency"—usually through a pre-arranged signal or action by the instructor—the correct procedure is to establish immediately the aircraft attitude that will give you the glide speed designated for the aircraft. This speed, as well as detailed emergency landing procedures for the specific aircraft, is found in the pilot's operating handbook (POH) or aircraft flight manual (AFM).

The next step, if you are so equipped and if in a "dirty" configuration, is to clean up the flaps and landing gear. If you were cruising at a speed above best glide, maintain altitude during the gear and flap retraction and allow the airspeed to dissipate to best glide. Once best glide speed is established, lower the nose to maintain that speed and trim as necessary. Trimming will allow you to

proceed with the remaining procedures as outlined in the emergency landing checklist. (Think of it as single pilot crew resource management.)

As you are completing the appropriate checklist, you are, of course, looking for the ideal emergency landing spot: One that is close by, smooth as a baby's posterior, and with no obstructions. Fat chance. Sometimes, especially in a bona fide emergency, you have to live with what you can get. Ideally, you'll want to select a spot so that you can "land" into the wind, and you'll need to use all the wind direction indicators you've learned; i.e., smoke, waves on water, blowing dust, etc.

The generic cockpit checklist looks something like this:

Engine Failure

✔ Airspeed - *Glide*
✔ Fuel selector - *Fullest tank*
✔ Fuel pump - *ON*
✔ Mixture - *RICH*
✔ Carb Heat - *ON*
✔ Magneto switch - *BOTH*
✔ Flaps - *UP*
✔ Gear - *UP*
✔ Seat belts - *Fastened*

The specific checklist for your aircraft may also give an air start procedure that you should try and re-try throughout the simulated emergency. While you're completing the checklist, you should also be selecting the emergency landing area and "checking" it for obstacles.

So, now you've established best glide and are maintaining it, completed the checklist, and selected the "emergency landing" spot, but the instructor's hand is still holding onto the throttle firmly—meaning, of course, that you are to continue with the appropriate approach to the landing spot.

FAA-approved technique says that you use "any combination of normal gliding maneuvers from wings level to spirals" to arrive at the usual, key position in a landing—the turn from base to final. Only upon reaching the key position should you lower flaps and landing gear, as appropriate for your equipment and as called for in the checklists. The variables you'll use to judge where that key position is include altitude, any obstructions, wind direction, landing direction, surface and its gradient, and available landing distance. Pretty complex, but one of those elements will buy you some time to complete your checklist and also select a landing spot and continue to fly the airplane, and that is altitude.

Again, a good instructor should show you how limited your options are with a simulated engine-out at low altitude (That alone should be enough to put you off scud-running.) and how many more options you have at altitude. Unused altitude above you is about as useful as the runway behind you. However, the inexperienced or non-proficient pilot can be lulled into delaying important decisions when carrying a lot of altitude, or he or she can misjudge the glide distance. That is why practice is so important.

If this misjudgement occurs, all is not lost, since lowering flaps, slipping, or moving the touchdown point (when feasible) can correct for misjudging the glide angle. However, it's also at this point that some pilots, thankful that they've "made the field" neglect to watch the airspeed. Because you are descending, the tendency is to allow the airspeed to build and be too fast for a safe landing. Excessive speed can cause you to float and overshoot the landing spot.

Then come the hoped-for words, "I think you would have made this one." The instructor's hand comes off the throttle, and you "take-off" again. (Actually, this is a good spot to practice go-around procedures, but that's another article.)

If you're not the pilot practicing simulated emergency landings but rather the instructor teaching or critiquing them, let's discuss some of your responsibilities. One of them is to arrange with the pilot—whether student or experienced—when you will turn control of the throttle back over to him or her. There should be no confusion at that point as to who is operating the throttle. A definitive, clear statement from the instructor, such as, "You have the airplane," is important to alleviate any confusion about who is advancing throttle and setting power.

The instructor, while simulating the inoperative engine—i.e., usually by closing the throttle and NEVER by shutting off the fuel—should periodically "clear" the engine. This helps keeps the engine warm and less susceptible to "shock" when full power is reapplied at the end of the simulated procedure.

As the instructor, you should allow the approach to continue until it is obvious to the pilot that he or she will either make the field or has judged badly. At no point, however, should any hazard be created or tolerated either to the aircraft and its occupants or to persons and property on the ground. FAR § 91.119 is for safety purposes, but people on the ground may not understand that what you are practicing is for the pilot's safety as well as theirs. What a too-low simulated emergency landing may be to them is noise and nuisance—not a positive image of a general aviation pilot being a professional.

Actual Emergency Approaches and Landings

I recently had the opportunity to fly from the island of Oahu in Hawaii overwater to the island of Kauai in a Beech Travelaire and remarked to a friend later that I was glad to have two engines over 85+ miles of water. "Right," he said, sarcastically, "30-year-old engines." I really hadn't thought of that because, in spite of how general aviation aircraft are portrayed, engine reliability and the quality of maintenance is still pretty remarkable.

All of this is to say that it is unlikely that an engine will simply quit, die, give up the ghost, and, at any rate, if it does, it usually gives you plenty of warning. The pre-takeoff engine run-up procedure is designed for the engine to exhibit those very symptoms so you can shut down on the ground and call or visit your friendly aviation mechanic to deal with it.

However, engine failures—or other emergencies—have led to situations where an off-airport or emergency landing becomes not only imminent but necessary, gravity being what it is. Unfortunately, in spite of pilot training, accidents have occurred, and NTSB studies have identified several factors that diminish a pilot's ability to deal with emergency landings.

- ***Reluctance to Accept the Emergency.*** Pop psychology calls this "denial," or "This can't be happening to me." Unconsciously the pilot delays reacting because of this denial or because he or she has

been rendered incapable of reaction from the thought of the ground coming up to meet the aircraft.

- ***Desire to Save the Aircraft.*** On one of many trips to New England in a single-engine aircraft through the New York VFR corridor, I remarked to my flying partner as I looked down on the Hudson River, that if we lost an engine at 1,000 feet (100 feet below the corridor ceiling), there was no where to put the aircraft, except the river. He pointed out the many abandoned piers jutting out into the water. "I'd slow the airplane down, aim for the pier, and figure that the wings would come off, but we'd survive. Then, it becomes an insurance problem." Oh. During an actual emergency landing approach, you have to take what you can get, and that may be a field that will damage the aircraft upon touchdown. Pilots may concentrate so heavily on not damaging the aircraft that they run out of altitude and/or airspeed, and a situation that they could have walked away from becomes a fatal accident.
- ***Undue Concern About Getting Hurt.*** Fear of pain is a motivator as well as a self-preservation mechanism. But pilots can be so afraid of being injured that they panic and are unable to fly the aircraft. Again, a survivable incident can become a fatal accident. We may have to face the fact that not only may we damage the aircraft in an actual emergency landing but also we may suffer injuries in the process. Broken limbs, cuts, and bruises heal; death is permanent.

The key to dealing with these three factors is that time-honored adage: "Fly the airplane." Concentration on maintaining glide speed, adhering to the checklists, resource management all keep your mind off what might happen and allow you to keep flying the airplane. As we said earlier, practice makes perfect; if you practice simulated emergencies enough, you'll carry that confidence over to a real situation.

As a primary student, you probably remember your instructor reminding you that "A competent pilot is constantly on the alert for suitable forced-landing fields." Obviously, the perfect one would be a runway or at the very least a hard-packed field with no obstacles. Somehow, those never seem to present themselves when you really need them—which is why my primary instructor would not let me pick them during simulated emergency landing practice. More than likely, your field of choice is a farm field, and one that has been cultivated is preferred, since that act of turning the soil with a machine tends to level out imperfections. If the field has been plowed, plan your landing parallel to the furrows. If the field is soft or snow-covered, some advocate landing with the gear retracted to reduce the likelihood of nosing over or damaging the gear.

Field length is sometimes difficult to estimate from the air, especially if you are so accustomed to the sight-picture of a paved runway. Ideally, you try to land directly into the wind, since a headwind means a slower groundspeed (less energy to dissipate) and a shorter total distance needed for roll-out. If obstacles don't allow that and you have to land with a tailwind, a longer field is a must. Landing directly into the wind should not become a hard and fast rule because there are a number of safety factors that may preclude it; e.g.:

- You may be so low that maneuvering into the wind is not possible.
- Obstacles may prevent it.
- You may be so far upwind of the field that you won't reach it after turning into the wind.
- If the field slopes down, a downwind landing may be preferable.

A crosswind landing is also a possibility, but crosswind correction is an added workload factor in an emergency. Furthermore, the field should also be wide enough to allow you to extend the "base leg" before turning final if you have misjudged your altitude or airspeed.

What altitude you have available is possibly the primary controlling factor in a successful off-airport landing. The lower you are the fewer your options. For example, if an engine failure occurs on takeoff at low altitude, your only option may be to land straight ahead. If any turns are necessary to use a field near the runway, they should only be a few degrees to either side. Even if you have sufficient altitude to turn back to the field, consider that you will be turning from upwind to downwind, increasing your groundspeed and reducing the amount of time you have to make decisions. This increase in groundspeed can also lead to the misconception that you need to slow down, which you would do by pulling the nose up. I think you can see where this is going.

In the turn back to the field, your aircraft will also lose altitude, and since you have no power, raising the nose to compensate can result in a stall and spin too low to the ground to recover. This is an all-too-common reaction, resulting in the possibility that the airplane will cartwheel (the stalled wing dropping and digging into the ground) with a disastrous outcome for the aircraft and its occupants.

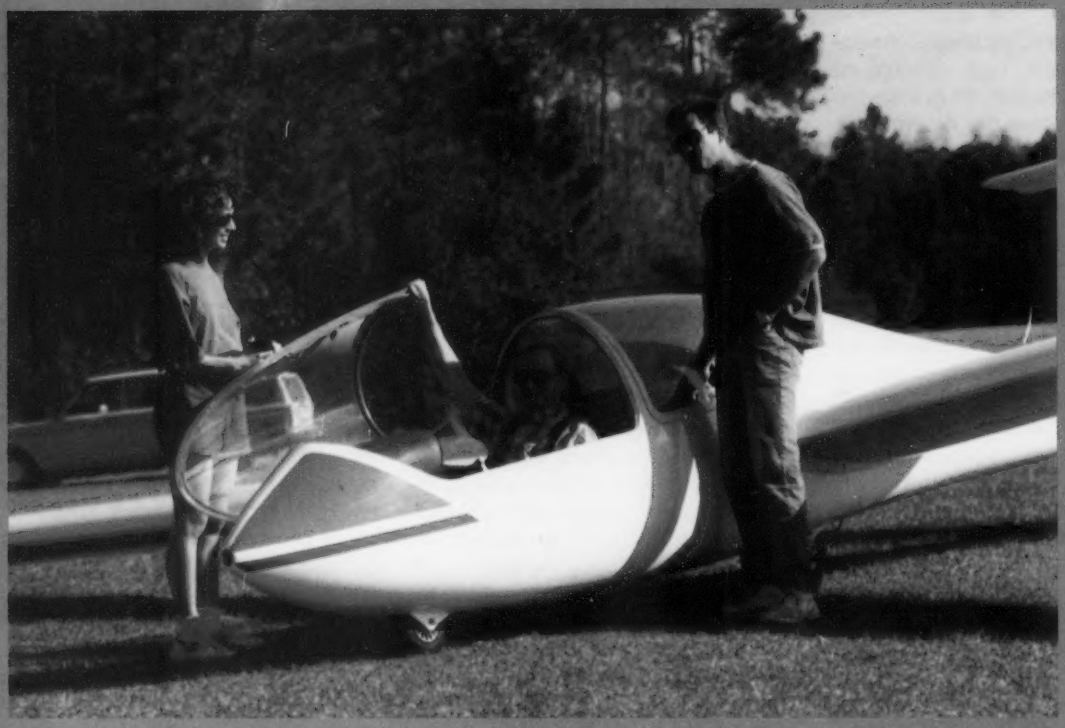
Continuing straight ahead means you can keep the aircraft under better control and make the landing as slowly and safely as possible.

By practicing engine-out "landings" at a safe altitude, you can determine how much altitude you lose in a descending 180° turn at idle power. Add a safety factor of 25% and establish your personal "decision height" for engine-out occurrences; i.e., "Below X feet, I land straight ahead." Also when practicing, conduct a 360° overhead approach, a 180° approach, a 90° approach, and a straight-in approach. That way, you'll be prepared for any possibilities an off-airport landing presents to you.

Still, after taking wind direction and speed, field configuration, obstacles, etc., into account, it all comes down to completing the off-airport landing safely, and that means under control—flying the airplane down to touchdown. If you have to make an off-airport landing, yes, you may damage the aircraft, but you and your passengers can walk away—albeit on shaky legs—but walk just the same.

After all, any landing you can walk away from...

Note: Consult the POH or AFM for your aircraft for specific emergency approach and landing procedures.



Story and photos by H.Dean Chamberlain

How to be a "Soaring" Success

By any definition, it was a success. Forget the needless modifiers that writers—not *FAA Aviation News* writers, of course—occasionally use to fill space. Success means just that. What I am talking about is the first annual sailplane safety seminar held in February at the FAA Safety Center at Lakeland Linder Regional Airport, Lakeland, FL.

When more than 130 people showed up to attend the day-long Saturday event, the organizers were ecstatic. Since this was the first sailplane safety seminar held at the FAA Safety Center, which is located about halfway between Orlando and Tampa, the organizers weren't sure how many soaring enthusiasts would attend. Twenty or 30 people would have been great. When the attendee count passed 100, the organizers were soaring, pun intended.

Those willing to spend a day discussing aviation safety ranged in age from early teens to early retirement and beyond. Their soaring experience ranged from new students to experienced veterans. The soaring veteran at the meeting was Mr. Rudi Hofmann of Clermont, FL. He soloed at the age of 15 in 1940.

Not only was the program a success, but it allowed everyone to share the unique camaraderie found between glider and sailplane pilots everywhere. This camaraderie is based in part on the fact glider pilots have to help each other launch and recover their aircraft. Like ballooning, soaring is a cooperative sport between pilots, ground crews, and everyone involved in the sport.

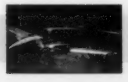
The common bond between the program speakers and those in attendance was their love of the sport of soaring. Hosted by Knut Kjenslie, a commercial gliderport owner, operator, and pilot examiner from Clermont, FL, and Obie Young, FAA Aviation Safety Program Manager from the Orlando Flight Standards District Office (FSDO), the safety seminar focused on the varied facets of soaring. The program covered such topics as soaring weather, cross-country soaring, accident prevention, aero tow procedures and accidents, Federal regulations, pilot fitness, and a review of glider accidents.

RULES TO LIVE BY—WATCH OUT FOR THE BULL

Soaring, like other specialized forms of flying, has its own unique vocabulary, safe operating procedures, national and international awards and records programs, dedicated participants, and some unique risks associated with the sport.

One risk glider pilots face is the possibility they may have to make an occasional off-airport or gliderport landing when they run out of altitude and lift at about the same time. Therefore, glider pilots must always be prepared for that possibility. But one risk of "landing out," as some people call it in the sport, is the chance of landing in the "wrong" field.

As a power pilot and glider convert, I had always thought that any field that I could land in and walk away from



would always be a "good" field. A bad field was one I could not land in without getting hurt. But was I mistaken. There are "wrong" fields. (I hate to admit to ever being wrong. Just ask my editor.) But as was pointed out at the seminar, there are good fields. And there are the "wrong" fields. In jokingly describing how to identify a "wrong" field, the speaker reminded the audience, that when anyone lands in a field with only one cow, that "cow" is probably a bull. Since the bull may not be friendly, you may want to stay in your glider until help arrives.

Such are the risks of landing out in the "wrong" field.

But as was pointed out during the safety seminar, pastures may not be the most desirable types of fields for any pilot to land in. The reason is a pasture may be a field too bad or rough to plow. Because it might be too bad to plow, there may be rocks or other hidden dangers in such fields not visible from altitude.

Then there is always the potential danger of fences, power lines, trees, drainage ditches, rough surface, or excessive slope that a pilot may not be able to see from altitude in any field. So it is important to pick a good field with adequate length and a clear approach when possible. This is another reason why all pilots should have a good potential landing site in view at all times when flying and the altitude to reach such a field. This is especially true for sailplane pilots flying cross-country over hostile terrain.

Another important safety tip for all pilots making an off-airport landing is to watch out for low wires such as telephone or power lines running along or across a potential landing site. Since it is difficult to see a wire at altitude, pilots need to look for the tell-tale indicators of wires along the edge of a field or while crossing the field. It is common to find wires along roads and running to isolated buildings on a farm or ranch. It also pays to check your chart for large power lines that may be charted because they serve a reference purpose.

Other safety tips for off-airport landings is it is better to land along the furrows in a newly plowed field rather than across the furrows. And it is better to land in a field being prepared for crops than in one with crops growing. But if you have to land in a field with crops, a recently harvested field is better than one with crops still standing. But landing in a field with a short crop is better than landing in a field with a tall crop such as corn. The reason is short crops do less damage.

If you land in any type of crop, you can bet you or your insurance company will pay for any damage to the crop or field. So if you have a choice, pick a cheap crop or one that is profit challenged to land in. It also pays if you know the types of crops planted in your area and how they look from the air. The knowledge might save you money, your aircraft, and you.

Regardless of where you land, there are two rules all pilots must remember. The most important rule in an off-airport landing is saving your life is more important than saving your aircraft. When in doubt, sacrifice your aircraft or the crop to save your life. That is why you have hull and liability insurance. The second rule is always be courteous to the owner in whose field you just trespassed. You may need a friend.

ARE YOU FIT TO FLY?

But before anyone has to worry about finding an off-airport or gliderport landing site, every pilot must decide if he or she is fit to fly. Dr. Margaret M. Rappaport, a psychologist from Orleans, MA, reminded the audience of the importance of being fit to fly. She pointed out that about 70% of aircraft incidents and accidents are human factors related. Then she proceeded to remind pilots that they have a responsibility to ensure they are mentally and physically fit to fly. Proper nutrition, adequate sleep, minimal stress, and avoiding hazardous thoughts and associated problems all contribute to reducing a pilot's human factors risk. Although skill is important in any activity such as flying, controlling those factors that interfere with good judgement and decisionmaking all play important roles in flight safety. Healthy foods are in. Fast foods are out.

IF YOU ARE FIT TO FLY, IS IT FIT TO FLY?

No sailplane seminar would be complete without a weather segment. Not just any weather segment, but one dear to the hearts of all soaring pilots and especially competitive soaring pilots. Retired Dr. Harry Senn, one of the most knowledgeable weather experts in soaring, told of an easy way for soaring pilots to calculate the *Thermal Index* or TI.

The TI is arguably the most impor-

tant number in soaring. When calculated using current data about a soaring site, the TI provides an index of the expected soaring conditions and projected soaring altitudes for that location. A negative index suggests a good soaring day. A positive index gives little hope. According to Senn, much of the data needed to calculate the index is now available through computerized weather service providers on the Internet. No longer do weather forecasters supporting soaring events have to bring all of their tools of the trade and reams of charts and paper. A few charts yes, but today, it is possible to get much of the current data off a computer. But it still takes an experienced weather forecaster or soaring pilot to do the calculations. Sometimes the information needed has not been computerized for the local flying area so the TI has to be calculated the old fashion way using such items as a wet-bulb thermometer and other data such as the atmospheric temperature at select altitudes. Like many things in life, experience still counts in flying.

Only in soaring is instability good. Unstable air means the chance of good flying conditions and lift. Stable conditions with little or no turbulence means a day to do other things—like flying power aircraft.

SAILPLANES AND AIRPLANES

Hooper Harris, a former glider owner, glider flight instructor, glider pilot examiner, and now an FAA Aviation Safety Inspector in the Orlando FSDO, spoke on several topics of importance to all pilots. The first involves the risk of midair collisions between powered aircraft and gliders on tow.

In the United States, one of the most common methods of launching sailplanes is by towing them aloft by using an airplane with a 150 to 200 foot-long tow rope. The towplane tows the sailplane to either an area of lift or a specified altitude where the sailplane releases. The towplane then returns for a landing trailing the tow rope. (A towplane may also tow a sailplane cross-country from one landing site to another.)

Although sailplane pilots are knowledgeable about the potential dangers of being towed, other pilots may not be. All pilots should be aware that when they see a sailplane being towed, there is a rope between the two aircraft. Don't expect to fly between the two aircraft. Also don't think the two aircraft are just flying a close formation flight and can separate. They are like inseparable twins. They like to stay together.

Also be aware that when a sailplane releases from tow, the sailplane will break right and try to climb. The towplane will break left and descend trailing the tow rope. Their goal is to gain the maximum separation as possible to avoid a collision as well as getting the towrope away from the glider. All pilots should plan on giving both the towplane and glider adequate space to separate so that the glider does not get entangled in the tow rope that could possibly jam its controls.

Pilots should also be alert to the possibility that if you see one sailplane soaring in good lift, you may find others circling above or below it.

RIGHT-OF-WAY RULES AND THEIR ROLE IN COLLISION AVOIDANCE

Another important point discussed was the right-of-way rules listed in FAR § 91.113. The rule states in part, "A glider has the right-of-way over an airship, airplane, or rotorcraft." (Only a balloon has right of way over a glider.) The rule also states an aircraft towing another aircraft has right-of-way over all other engine-driven aircraft.

Simply stated, pilots flying near sailplane operations or gliderports should exercise caution when flying near sailplanes on tow and to remember the right-of-way rules. Also, power pilots should think of the block of airspace from the nose of a towplane to the end of the glider as a single block of airspace. Other pilots should give them both adequate room to fly, maneuver, and separate.

SEE AND AVOID

Since most gliders don't have an electrical system onboard, most won't have radios or transponders either. Some gliders may have battery powered radios onboard, and gliders operating within Class A or B airspace should have both radios and transponders onboard. But to be safe, all pilots must assume that most sailplane pilots aloft may not be talking or working with air traffic control (ATC). This also means pilots can't expect air traffic control traffic advisories of nearby glider activities unless the sailplane pilots have notified ATC of their operation.

Because of this potential lack of ATC information or radio communication, the most basic safety rule in aviation, FAR § 91.113(b), takes on even more importance when pilots are operating near known soaring areas. That is the "see and avoid other aircraft" rule.

Although some sailplanes may be IFR equipped and on an IFR flight plan, the see and avoid rule still pertains in VFR conditions.

CHART READING TO AVOID MIDAIR'S

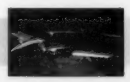
Another way all pilots can help avoid a possible midair collision with a glider is to review their appropriate VFR navigational charts for charted glider locations. This is particularly important whenever the pilot is flying outside of his or her local flight area.

In addition to looking for the symbolic sailplane, pilots should also look for charted parachute, ultralight, and hang glider symbols. Each of these symbols indicate special flight activities that other pilots need to be aware of when flying near such symbols.

Since sailplanes and ultralight vehicles often fly crosscountry, all pilots need to watch out for them beyond the locations plotted on the charts.

SOARING TO NEW HEIGHTS

Occasionally, sailplanes may request blocks of airspace from ATC for



competitive purposes or altitude attempts. When ATC approves such requests and issues a block of airspace or a soaring window, ATC should report such restrictions to other pilots and not route IFR traffic through the airspace. But it is possible for VFR and IFR traffic to see sailplanes up to and including in Class A airspace. Once in Class A airspace, all traffic is controlled so this should not be a problem. But below 18,000 feet, sailplanes may be found at any level in VFR conditions.

To show the capabilities of modern sailplanes, according to the Soaring Society of America (SSA) the current U.S. sailplane open class altitude record is 14,938 meters or 49,009 feet set by Robert R. Harris in 1986 in California City, CA.

SAILPLANE ACCIDENTS AND SAFETY STRATEGIES

Billy Singleton, an airline pilot and soaring safety representative who works with both the Soaring Society of America (SSA) and the Soaring Safety Foundation (SSF), spoke twice during the seminar. One talk was on glider accidents and the other was on accident prevention techniques. Based upon his comments, data, and material from the SSF, sailplane pilots have accidents similar to that of their powered aircraft kin. The only two exceptions are sailplane pilots don't normally have engine problems (although some sailplanes have engines), and powered aircraft pilots normally don't have towing related problems although towplane pilots and sailplane pilots do.

STALL/SPIN ACCIDENTS

According to data going back to 1981, stall/spin accidents account for almost 40 percent of sailplane fatal accidents although only 20 percent of the total reported accidents were stall/spin accidents. These numbers point out the fact that when a pilot stalls/spins near the ground, the results are often fatal. The best prevention technique: maintain coordinated flight at low altitudes. This is especially important in the traffic pattern when turning base to final and when flying tight circles while thermalling at minimum airspeeds.

TOWING ACCIDENTS

The next highest category of fatalities involves towing. Because every aero-tow glider pilot must be prepared for the possibility that the towplane may develop a problem on takeoff or the tow rope may break or the glider pilot may make a mistake on tow, the tow and glider pilot must have a plan of action to handle such problems on every takeoff. Depending upon altitude, the glider pilot can land straight ahead on the runway, land ahead just off the runway, or return to the runway and land. But poor technique can result in the towplane or glider crashing.

One danger unique to the towplane pilot is the risk that the glider pilot may kite up into the air above the towplane and literally cause the towplane to nose dive into the ground. Unless the towplane pilot can quickly release the tow rope and glider and regain control of the towplane, the results can be fatal to the towpilot.

Gliders are not exempt from landing accidents, but rarely does an overshoot or landing beyond the runway result in a fatality in gliders, but landing short or not making the runway accounts for about eight percent of the fatal accidents.

Proper flight planning, conservative altitude management, proper use of dive brakes, spoilers, flaps, and good pilot technique can minimize such accidents. Pilots can also minimize their personal risks by wearing shoulder harnesses, sitting on good, impact-absorbing padding, wearing parachutes, and following good cockpit resource management. All of these techniques can help reduce accident risks and save lives.

One way to avoid a preventable risk is by making sure the canopy or canopies are always closed and locked before takeoff. Like doors opening in aircraft, glider canopies

opening in flight have caused needless accidents or incidents. An open canopy or door should not result in an accident, but occasionally they do.

Good cockpit management and following a good checklist can reduce or prevent such problems.

OFF-AIRPORT LANDING ACCIDENTS AND MIDAIR COLLISIONS

Off-airport landings also cause their share of accidents. Good planning, good altitude management, good airspeed control, and good site selection can minimize such accidents.

We don't want non-glider pilots and our non-flying readers to think sailplane pilots are always at risk for an off-airport landing every time they launch. Not true.

Glider pilots are trained how to determine the minimum altitude they need to venture away from their launch point and still return. Called a flight profile, the technique uses a conservative factor of the glider's glide ratio to calculate the minimum altitude needed to fly cross-country from one gliderport or airport to another. Or, it tells how far you can fly away from your home field and return. Modified for wind, the profile provides the minimum altitudes needed for each point along a course to reach either the home field or at some altitude the destination landing site. If the targeted altitude needed to continue the flight is not obtained through soaring, the current altitude should provide the altitude needed to return for a normal and safe landing.

It is when a person miscalculates, takes a chance on finding lift below the required targeted return altitude, or weather conditions change that a sailplane pilot may have to land out. Even then, for glider pilots, landing out is not an emergency. It may not be routine, but it is not an emergency unless over hostile terrain. It is more an inconvenience than anything else.

Although sailplanes frequently fly near each other while soaring, midair's account for a relatively few accidents. In 1996 there were four midair collisions between gliders and airplanes. The best preventative technique is the old "SEE AND AVOID RULE."

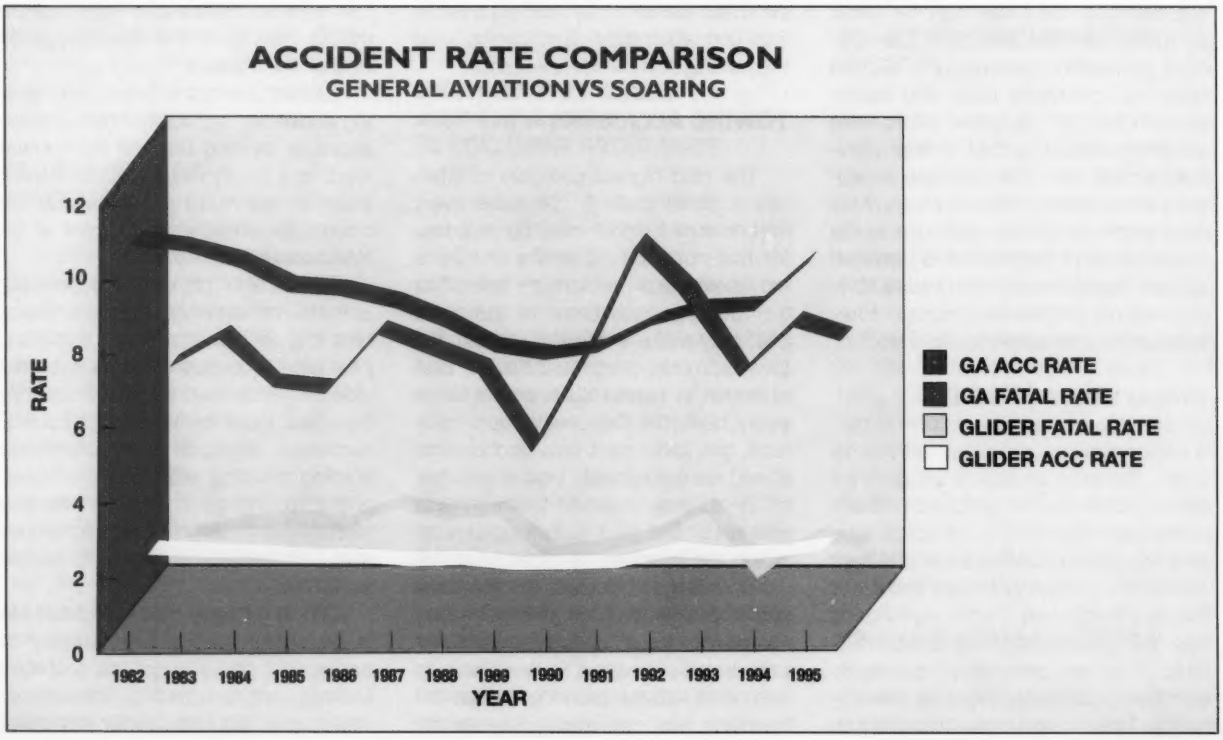
THE SECOND ANNUAL SAILPLANE SAFETY SEMINAR

If you are in the Lakeland, FL, area next February, plan on stopping by the FAA Safety Center at the Lakeland Linder Regional Airport for the Second Annual Sailplane Safety Seminar. We think you will be glad you did.

To find out the yet to be determined date, you can call Obie Young, the FAA Safety Program Manager at the Orlando FSDO at (407) 816-0000, or you can visit the Orlando FSDO on its Internet Web Site at (http://www.faa.gov/so/fs/fsdo15). Its computer BBS is 800-645-3736.

Anytime you are in the Lakeland or central Florida area, you can contact the Orlando FSDO for a schedule of current safety seminars at the FAA Safety Center in Lakeland.

FAA Aviation News *would like to thank everyone at the seminar who contributed to this article.*



CHANGES TO VISUAL CHARTS AND TPP

Starting this fall, visual aeronautical charts, terminal area charts, VFR flyway planning charts, world aeronautical charts, and helicopter route charts will undergo some changes designed to eliminate confusion and increase user "friendliness." The changes include:

- Tints indicating water will be changed so that the user can distinguish between open water and inland water. The tints used will be changed for improved definition.
- Roads will change from magenta to black.
- New symbols will be used to indicate areas of hang gliding, ultralight, and glider operations. (Figure 1)
- The Parachute Jumping Area symbol will change from blue to magenta and will be brown on helicopter route charts.
- Boxed notes indicating approach control frequencies for Class B and C airspace will contain more concise wording, and the notes will be printed on a white background to make them more readable. (Figure 2)
- The Mode C symbol and type will change from blue to magenta and will be brown on helicopter route charts.
- Terminal area charts and VFR flyway charts will have new IFR arrival/departure route symbols.
- The border used on sectional charts to show terminal area chart coverage and/or inset will become a white border with blue type. The corresponding note will also change.

When the next set of Terminal Procedures Publication (TPP) is issued on November 6, three new volumes will be added, bringing the total number of volumes to 20. The increase in volumes is because of the growing number of global positioning system (GPS) procedures.

The three new volumes are:

- NC-3, Iowa and Missouri
- SC-4, Louisiana and Mississippi
- SE-4, Alabama and Georgia

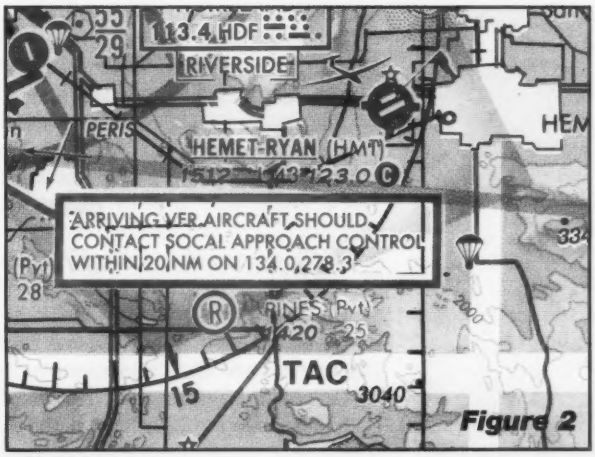


Figure 2

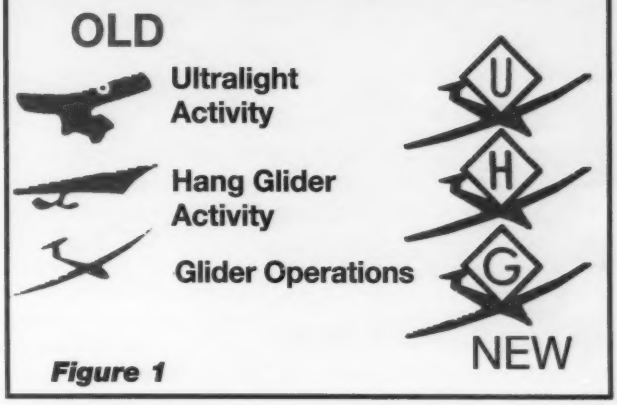


Figure 1

Five other volumes whose areas of coverage have changed are:

- NC-1, North and South Dakota and Minnesota
- NC-2, Nebraska and Kansas
- SC-1, Oklahoma and Arkansas
- SE-1, Kentucky and Tennessee
- SE-2, North and South Carolina

Customers who currently subscribe to the volumes covering the affected areas will receive the new and revised volumes at no additional cost until the subscription expires. After that subscribers must adjust their subscription order to reflect the new volumes. If you subscribe to a full set, the new volumes will be included.

AVIATION OXYGEN

The following, adapted from FAA's *General Aviation Airworthiness Alerts,* makes you want to run and check your oxygen bottle.

A crash of a Cessna 337 currently under investigation by FAA and the National Transportation Safety Board appears to have been caused when the crew was incapacitated by hypoxia at FL 230. The aircraft's oxygen system had been serviced from an oxygen cart with yellow cylinders.

Industry standards dictate that compressed air is contained in yellow cylinders and oxygen in green cylinders. Invoices confirm that the supplier delivered compressed air to the company owning the Skymaster. Compressed air is not for human consumption.

Owners and operators must assure that their aircraft oxygen systems are serviced only with aviation oxygen. Advisory Circular (AC) 43.13-1A, "Acceptable Methods, Techniues, and Practices—Aircraft Inspection and Repair," provides servicing information for oxygen systems and specifications for aviation oxygen. Moisture content for aviation breathing oxygen must not exceed 0.005 milligrams of water vapor per liter of gas at a temperature of 70ºF and a pressure of 760 mm of mercury.

AIRSHOW POLICY AND REGULATIONS OVERVIEW

By Ed Robinson

Mickey Hostetler photo

As millions of people watch and are thrilled by spectacular air show acts this summer, this is a good time to review the safety and regulatory basis for the industry. The most important role of the FAA in working with the airshow industry is to protect those on the ground watching the show, those living near the airshow site, and those performing in the airshow. The FAA does this by reviewing the sponsor's or performer's airshow plan to ensure that all flight and safety regulations are obeyed or, for those regulations that may need be and that can be waived, that an equivalent level of safety is maintained at all times. This article is a compilation of existing pertinent FAR and FAA policy governing the requirements for airmen and aircraft that conduct acrobatic flight operations with particular emphasis on acrobatic performances conducted at airshows.

This article is intended to be informational only. It is neither mandatory nor regulatory in nature, and by itself does not constitute a regulation, legal opinion, or official FAA policy. For detailed information on the operational issues involved in organizing an airshow or learning how to qualify to perform in one, organizers and pilots should contact their local FAA Flight Standards District Office (FSDO).

SYNONYMOUS WORDS

Acrobatic vs. Aerobatic. The terms "acrobatic" and "aerobatic" both appear in FAR and pertinent FAA policy. While at one time the term "aerobatic" tended to refer more to the highly structured type of flying conducted at aerobatic competitions and the term "acrobatic" tended to refer more to free-style showmanship of airshow flying, today these two terms are generally synonymous. Regardless of the differences in these two types of aerobatic flight operations, many of the abilities required of pilots and aircraft are generally similar for both activities.

Glider vs. Sailplane. The terms "glider" and "sailplane" both appear in the FAR and FAA policy, and are generally synonymous.

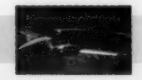
OPERATIONAL CONSIDERATIONS FOR AEROBATIC FLIGHT

Civil Airmen Qualifications

Beyond basic airman medical certification, currency for day/night visual flight rule requirements, and any aircraft type rating or letter of authorization (LOA) requirements for acting as pilot in command, there are no airman certification or currency requirement in the FAR for conducting acrobatic flight. FAA policy in Chapters 31 and 49 of FAA Order 8700.1, *General Aviation Operations Inspector's Handbook*, requires both U.S. and foreign certificated pilots to be evaluated and possess a valid FAA Form 8710-7, *Statement of Acrobatic Competency*, or Transport Canada Form 26-0307, *Statement of Aerobatic Competency,* to conduct aerobatics at an airshow governed by the provisions of a Certificate of Waiver issued by the FAA. With the exception of some motion picture production activities, airmen are not required to possess a valid FAA Form 8710-7 or any other kind of endorsement of their competency when conducting acrobatic flight operations at any other time and/or anywhere else in the national airspace system (NAS), including participation in acrobatic competitions and closed-course air racing. Additionally, a valid FAA Form 8710-7 is not required by performers who conduct aerobatics at an airshow in ultralight vehicles which meet the applicability section of FAR § 103.1.

Military Airmen Qualifications

Current FAA policy requires both U.S. and foreign military flight demonstration teams to show their compe-



tency and ability to adhere to pertinent FAR and FAA airshow policy for those acrobatic displays conducted in accordance with a Certificate of Waiver. Upon completion of a successful showing, the team is issued a letter of authorization to conduct aerial demonstrations in the United States. The primary aeronautical qualifications of the individual airmen are determined by the appropriate military command in the country of origin and generally are not subject to review by civil aviation authorities.

Applicable Sections of FAR Part 91

FAR § 91.303 - General. This section of the FAR lists the airspace in which acrobatic flight is not permitted by any aircraft, either civil or public use. The primary intent of this aeronautical "rule of the road" is to provide a level of safety for people on the surface and others who make use of the NAS. Additionally, some safeguards are also extended to the aircraft conducting the acrobatic flight operations.

This section also provides its own operational definition of acrobatic flight. Generally, any intentional maneuver involving an abrupt change in an aircraft's attitude, and/or an abnormal attitude, and/or an abnormal acceleration not necessary for normal flight is defined as acrobatic flight.

"Normal flight" means how the majority of pilots fly in the NAS. Normal flight does not mean the type of flight an acrobatic aircraft may be capable of performing. These limitations on aircraft maneuvers define and describe acrobatic flight operations only for the specific purpose of providing a level of safety for persons not directly associated with the operation. Generally, it is not intended that this section of the FAR set forth a universal definition of acrobatic flight.

FAR § 91.303 - Airshow Waivers. With the exception of FAR § 91.303(a), other pertinent sections of FAR § 91.303 can be waived for an airshow in accordance with current FAA policy. According to Chapter 49 of FAA Order 8700.1, paragraph 5A, Definitions, the unlettered last paragraph definition of acrobatic flight found in FAR § 91.303 must always be waived for airshows.

Paragraph 5A prescribes a more functional definition of acrobatic flight usually conducted at an airshow. This definition is more appropriate for the FAA to meet its statutory requirement in providing aviation safety oversight of public aviation events. Generally, as per paragraph 5A, any inverted flight or pitch or bank angle in excess of 90° conducted by aircraft at an airshow is considered acrobatic flight.

One exception is high performance turns conducted by aircraft assigned to North American military units, regardless of bank angle. This definition of acrobatic flight is applied to airshow flight operations in the form of a special provision attached to the Certificate of Waiver issued by the FAA for each airshow.

Other requirements and limitations found in Chapter 49 are included as special provisions and also attached to the Certificates of Waiver. These provisions impose additional flight operational and civil airmen qualification requirements that will provide a level of safety for the non-participating public equivalent to FAR § 91.303 and other pertinent sections of the FAR. However, a Certificate of Waiver can never supersede any operating or special limitations issued as part of an aircraft's certificate of airworthiness (CoA), type certificate data sheet (TCDS), FAA approved flight manual (FM), and/or LOA.

FAR § 91.307 - Parachutes and Parachuting. This section of the FAR sets forth requirements when conducting certain aggressive, exaggerated aircraft maneuvers in the NAS. The purpose of this regulation is to provide a level of safety for occupants of the civil aircraft conducting these types of maneuvers. Generally, to conduct intentional maneuvers when the aircraft attitude exceeds 60° of bank and/or 30° of pitch, the aircraft occupants are required to wear an approved parachute, except for certain types of flight operations listed in this section of the FAR. These limitations on aircraft pitch and bank attitude, beyond which parachutes are required to be worn by aircraft occupants, do not define or describe acrobatic flight operations for any other purpose. Generally, it is not

Mario Toscano photo

Mario Toscano photo

intended that this section of the FAR set forth a universal definition of acrobatic flight.

AIRCRAFT CONSIDERATIONS

U.S. Registered Civil Aircraft

To perform in an airshow, a U.S. registered civil aircraft must hold an appropriate CoA issued by the FAA, be maintained in accordance with FAR Parts 21, 43, and 91 as required, and meet original type design or be in an approved altered condition that is safe for flight.

In accordance with FAR § 91.9, all maneuvers performed at airshows shall be conducted in accordance with any operating or special limitations issued as part of the aircraft's CoA, TCDS, FM, and/or LOA. Most of these limitations are developed during the type certification (TC) process and in many cases can be found in the FM. Regarding some vintage, unique, replica, or foreign manufactured aircraft, information normally found in the FM may be minimal or nonexistent.

It is incumbent upon aircraft owners and operators who conduct aerobatic flight operations to be knowledgeable about the certification basis of their aircraft and how the certification basis defines authorized flight operations.

In some cases, this aircraft-specific information may only be available from the aircraft manufacturer. Aircraft type clubs and related organizations may be another source of this information, but their level of expertise may vary.

The Experimental Aircraft Association (EAA) maintains a list of these organizations. Their address is Antique/Classic Type Clubs, EAA Aviation Center, P.O. Box 3086, Oshkosh, WI 54903-3086; phone number (414) 426-4800. Their e-mail address is:

Vintage@eaa.org

URL address is: http://www.eaa.org

Another source of information on airplane certification regulatory requirements is the FAA's Small Airplane Directorate, 1201 Walnut, Suite 900, Kansas City, MO 64106; phone number (816) 426-6937.

AIRPLANES

Airshow Aerobatics

For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by a civil airplane is considered acrobatic flight and must be addressed in the Certificate of Waiver with appropriate special provisions.

Authorized Maneuvers

For airplanes issued standard CoA in the Normal, Utility, or Acrobatic Category, the regulations that set forth the certification basis for aircraft issued a Standard U.S. CoA have continually evolved and changed substantially from 1926 to today. Therefore, the need for aircraft owners and operators to understand the certification basis of their aircraft cannot be over stressed.

Vintage Airplanes

Civil Air Regulations (CAR) used as the certification basis for airplanes certificated by the Department of Commerce, Bureau of Air Commerce, were written in a different manner than the generally restrictive nature of the current FAR. CAR Part 04 is the certification basis for airplanes receiving type certification from November 1, 1937 to November 13, 1945. Before November 7, 1937 the certification basis for

airplanes is Aeronautical Bulletin 7A which was even less definitive than the CAR. Certain vintage airplanes were type certificated using CAR Part 04 as the certification basis. These airplanes certificated in the normal class may be authorized to conduct acrobatic flight operations. Piper J-3 series airplanes are an example of normal class airplanes that may be authorized to conduct aerobatics. This discussion could apply to other vintage airplanes from that era.

These airplanes were approved in the normal class as defined in CAR Section 04.01. At the time, the normal class was all that was available for airplanes over 1,000 pounds maximum weight. The classes in CAR Part 04 are not comparable to categories described in FAR Part 23 today. Airplanes certificated in the normal class under CAR Part 04 were certificated to very nearly the same structural loads as acrobatic category aircraft type certificated under FAR Part 23 today. CAR Section 04.2, Structural Loading Conditions, found in the initial version of CAR Part 04 dated November 11, 1937 provided all of the loading conditions for the airplane structure. As an example, CAR Part 04, Section 04.2131, Condition I (positive high angle of attack) states that the factors given in Table 04-1 and Figure 04-3 shall be used. For this condition, the limit load factor is 5.33. This load factor corresponds to the current limit load factor of 6 for acrobatic in FAR § 23.337(a). These structural loading conditions found in the first version of CAR Part 04 remained unchanged in all subsequent revisions until Part 04 was recodified into CAR Part 03 on November 13, 1945. As an example, all Piper J3 series aircraft were certificated in accordance with either CAR Part 04 or its predecessor, Aeronautical Bulletin 7A.

TCDS No. A-691 states a cockpit placard prohibiting "all acrobatics, including spins" is required when a Lycoming 0-235-C engine is installed in Model PA-11 airplanes. A similar restriction on aerobatics is seen again on page 28 of TSDC A-691, where it states models J3C-65 and PA-11 airplanes certificated for agricultural operations in the restricted category before October 11, 1950, have additional limitations, one of which is a cockpit placard prohibiting "all acrobatics, including spins." Additionally, the installation of crop spraying equipment to any model certificated in accordance with this type certificate requires a placard that states "All acrobatics including spins prohibited when spray equipment is installed." TC's A-692 and A-698 have a prohibition against intentional spins when a Brodie Hook is installed on any model certificated in accordance with these type certificates.

Based on the above discussion, it would appear that unless specifically prohibited as indicated in the Aircraft Specification Sheet or TCDS, the authorization to conduct acrobatic flight operations with airplanes certificated using Bulletin 7A or CAR Part 04 as the certification basis is implied.

Present-Day Airplanes

Currently, small airplanes that are issued a Standard U.S. CoA in the normal, utility, or acrobatic category are certificated in accordance with FAR Part 23 or CAR Part 3, depending on the certification basis. Airplanes in the normal category are limited to maneuvers that do not exceed 60° of bank. Utility category airplanes are authorized to conduct maneuvers that exceed 60° of bank, and may be approved to conduct spins. Acrobatic category aircraft are authorized to conduct maneuvers without any restrictions, except those shown necessary as a result of certification flight testing. The FM of contemporary airplanes should contain sufficient information concerning authorized maneuvers and any limitations.

AIRPLANES ISSUED SPECIAL COA'S IN THE PRIMARY, RESTRICTED, LIMITED, OR EXPERIMENTAL CATEGORY

Primary Category

Currently, aircraft that are issued a primary category CoA must conform to an approved primary, normal, utility, or acrobatic aircraft type design, or conform to sport plane certification standards which are similar to Utility category standards. The certification basis for primary category aircraft can be FAR Part 23, CAR Part 3, JAR/VIA, Sportplane, or any other custom developed certification basis accepted by the FAA under Primary Category. Therefore, operators who perform inverted flight or spin maneuvers in airplanes that are issued a special CoA in the primary category must determine the ability of the airplane to safely perform the intended flight operation, and ensure that the operation is conducted in accordance with any operating limitations issued by the FAA as part of the CoA.

Additionally, any flight maneuver that exceeds the flight envelope demonstrated during TC flight testing may require the issuance of a special CoA in the experimental category or the issuance of an STC in accordance with FAR Part 21, Subpart E. If these flight envelope limitations are not available in the FM or TCDS, information on these maneuver limitations can be obtained from the aircraft manufacturer.

Restricted Category

Restricted category CoA are issued for certain special purpose operations as described in FAR § 21.25. Generally, participating in public, sporting aviation events such as airshows or air races are not one of the special purpose operations authorized.

Limited Category

Generally, a limited category CoA is issued to a surplus aircraft of the Armed Forces of the United States from the World War II era and is certificated in accordance with FAR § 21.189. The FAA may include operating limitations as part of the certificate in addition to any operating limitations described in the original military FM. For example, the P-51 Army Technical Orders AN-01-60JD-1 and AN-01-60JE-1 prohibit the aircraft from performing aerobatic maneuvers with fuel in the fuselage fuel tank. It is incumbent upon the owner/operator of the airplane to determine the ability of the

airplane to safely perform any intended flight operation, to ensure the flight operation is conducted in accordance with any operating limitations described in the original military FM, and in accordance with any operating limitations issued by the FAA as part of the CoA.

Experimental Category

Experimental category certificates of airworthiness are issued for certain purposes as described in FAR § 21.191. To perform at airshows, an experimental CoA should be issued for the purpose of exhibition. To participate in closed course air racing, an experimental CoA should be issued for the purpose of air racing.

The FAA may include operating limitations as part of the CoA in addition to any operating limitations described in the original military FM for surplus aircraft of the Armed Forces of the United States, if appropriate.

It is incumbent upon the owner/operator of the airplane to determine the ability of the airplane to safely perform any intended flight operation, and to insure the flight operation is consistent with the purpose for which the certificate was issued, and conducted in accordance with any operating limitations issued by the FAA as part of the CoA, and if appropriate, any operating limitation described in the original military FM. For example, the P-51 Army Technical Orders AN-01-60JD-1 and AN-01-60JE-1 prohibit the aircraft from performing aerobatic maneuvers with fuel in the fuselage fuel tank.

GLIDERS

Airshow Aerobatics

For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by a civil glider is considered acrobatic flight and be must addressed in the Certificate of Waiver with appropriate special provisions.

Authorized Maneuvers

In accordance with FAR § 21.17(b), for special classes of aircraft for which airworthiness standards have not been issued in the FAR, the applicable TC requirements will be other airworthiness criteria the FAA finds will provide an equivalent level of safety.

FAA Advisory Circular 21.17-2A, *Type Certification--Fixed-Wing Gliders (Sailplanes), Including Powered Gliders,* defines gliders as just such an example of a special class of aircraft. The FAA has determined that the criteria of Joint Airworthiness Requirements (JAR)-22 for *Sailplanes and Powered Sailplanes*, as amended, provides an acceptable level of safety and is appropriate for use as the certification basis for gliders. JAR 22.3 sets forth two categories for gliders, Utility and Aerobatic. Gliders certificated in either category in accordance with JAR-22 will have information in the FM and cockpit placards that prescribe certain "permitted maneuvers" that were demonstrated during TC flight testing.

After TC, to conduct any maneuver that exceeds the flight envelope of these "permitted maneuvers" may require the issuance of a special CoA in the experimental category, or the issuance of an STC in accordance with FAR Part 21, Subpart E. If these "permitted maneuvers" and/or other limitations on maneuvers are not available in the FM, cockpit placards, or TCDS, information on these maneuver limitations can be obtained from the aircraft manufacturer.

SMALL AGRICULTURAL AIRPLANES

Airshow Aerobatics

For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by an agricultural aircraft is considered acrobatic flight and must be addressed in the Certificate of Waiver with appropriate special provisions.

Authorized Maneuvers

In accordance with FAR § 21.25(a)(1), small agricultural airplanes are subject to the same TC requirements as a FAR Part 23 normal category airplane, except for those requirements that are found to be inappropriate for the special purpose operation. As an example, spin testing may not be required for certification of a small agricultural airplane. Additionally, no U.S. registered small agricultural airplane with a CoA issued in the restricted category is authorized to conduct inverted flight.

Therefore, small agricultural airplane operators who perform inverted flight or spin maneuvers shall ensure that the aircraft has a valid special CoA issued in the experimental category for the purpose of exhibition or an appropriate STC.

Additionally, any flight maneuver that exceeds the flight envelope demonstrated during TC flight testing may require the issuance of a special CoA in the experimental category or the issuance of an STC in accordance with FAR Part 21, Subpart E. If these flight envelope limitations are not available in the FM or TCDS, information on these maneuver limitations can be obtained from the aircraft manufacturer.

ROTORCRAFT

The following guidance is applicable to both helicopters and gyrocopters.

Airshow Aerobatics and Other Maneuvers

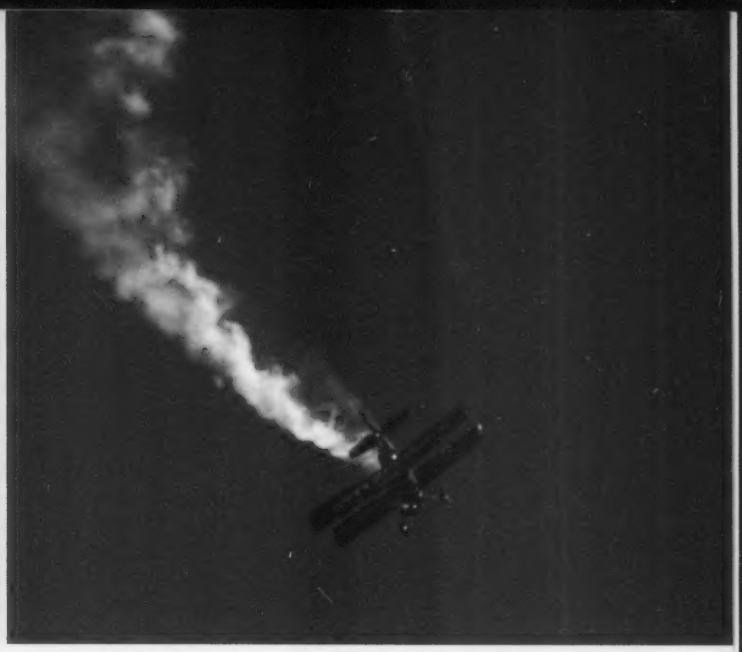
For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by a rotorcraft is considered acrobatic flight and must be addressed in the Certificate of Waiver with appropriate special provisions.

Agility maneuvers (less than 90° of pitch and/or bank) performed by helicopters at airshows also require consideration in the Certificate of Waiver.

Any civil rotorcraft act that includes a rotorcraft external-load as defined in FAR Part 1 requires certification in accordance with and must meet the operating requirements of FAR Part 133.

Authorized Maneuvers

No U.S. registered civil rotorcraft



with a CoA in the standard category is authorized to conduct inverted flight. Therefore, rotorcraft operators that perform inverted flight maneuvers shall ensure that the aircraft has a valid special CoA issued in the experimental category for the purpose of exhibition or an appropriate STC.

To conduct any flight maneuver that exceeds the flight envelope demonstrated during TC flight testing may require the issuance of a special CoA in the experimental category or the issuance of an STC in accordance with FAR Part 21, Subpart E.

Some rotorcraft may have an FM that prescribes limitations on aircraft attitude. If these limitations are not available in the FM or TCDS, information on these maneuver limitations can be obtained from the manufacturer.

FOREIGN REGISTERED CIVIL AIRCRAFT

In accordance with FAR Part 375, Subpart D, a foreign aircraft permit is not required for foreign aircraft entering the United States for the purpose of performing in an airshow.

Airshow Aerobatics

For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by a foreign registered aircraft is considered acrobatic flight and must be addressed in the Certificate of Waiver with special provisions.

Airworthiness

In accordance with Chapter V of the Convention on International Civil Aviation, FAR Part 375, Subpart B, and FAR § 91.203(a)(1) no person may operate a civil aircraft of foreign registry unless it contains current certificates of registry and airworthiness issued or rendered valid by the country of registry, or a special flight authorization issued in accordance with FAR § 91.715.

Authorized Maneuvers

In accordance with FAR § 91.9, all maneuvers performed at airshows shall be conducted in accordance with any operating or special limitations issued as part of the aircraft's CoA, or other certification and/or airworthiness documents issued or rendered valid by the country of registry.

MILITARY AIRCRAFT

State (military) aircraft from foreign countries that perform in airshows in the United States receive a diplomatic clearance from the U.S. Department of State to operate in the NAS. This clearance is obtained by applying to the appropriate military attaché in the U.S. Embassy in the country of origin. Generally, these authorizations are not subject to review by FAA personnel. The airworthiness standards and operating limitations for both U.S. and foreign military aircraft are determined by the appropriate military command in the country of origin and generally are not subject to review by civil aviation authorities.

ULTRALIGHT VEHICLES

For the purpose of issuing a Certificate of Waiver for an airshow, any inverted flight maneuver or pitch and/or bank angle greater than 90° conducted by an ultralight vehicle that meets the applicability section of FAR § 103.1 is considered acrobatic flight and be should addressed in the Certificate of Waiver with appropriate special provisions. There are no certification or airworthiness standards for ultralight vehicles. In accordance with FAA policy, the operator of the vehicle should provide the FAA with a statement of determination that the vehicle and operator are able to conduct the proposed demonstration without creating a hazard to persons and property on the surface. This statement should contain a summary of how the determination was made.

Mr. Robinson is the FAA National Resource Specialist for Sport Aviation-Operations. For further questions, he may be contacted at (202) 267-8212.

INTO THE GOO IN A 172

by Ric Barnett

Unintentional flight into instrument meteorological conditions (IMC) is a killer.

On the last weekend of 1995, I discovered why, first hand. The flight was a planned cross-country from Eielson AFB to Ft. Greeley (both in Alaska), a distance of less than 70 miles. The weather forecaster was calling for minimum ceilings of 4,500 feet with the worst visibility around seven miles in light snow showers. Winds were light and variable on the surface and forecast to be from the north around 20 knots at my planned altitude of 3,500 feet. It was a balmy four degrees on the ramp.

The flight was a Civil Air Patrol orientation flight for one of our cadets. I briefed him on several navigation techniques and on the effects of various weather phenomena on flight. We carefully went over the route of flight and talked about the elevation of the terrain that we would be crossing. As part of the briefing, I also covered minimum airspeeds that he should expect to see during the mission. One of his responsibilities was to back me up on airspeed control and let me know if we got below 65 anytime other than takeoff or landing. This detail was to prove fortuitous.

As we taxied out, I pointed to a column of steam coming out of the power plant at Eielson and joked about the weather forecaster "lying" about the cruise level winds. Instead of being from the north, the upper winds appeared to be more southeasterly. It made for a good point about the pilot being responsible for knowing his or her surroundings in order to make early adjustments to changing weather.

Taxi, takeoff, and climb were all uneventful. The ceiling was well above us as we leveled off at 3,500, and we could already see our highest point along our route of flight, some 20 miles in front of us. I trimmed the Cessna 172 and settled in to enjoy the fun of introducing someone to the pleasure of flight. As we approached the hills northeast of Harding Lake, I noticed some ragged patches of ground fog or low stratus scattered around some of the hilltops. Also, the visibility was dropped in some areas because of the light snow showers. So far, except for the winds, the forecast was right on the money, and I saw nothing to worry about. It appeared to be the perfect day for exploring navigation and weather.

As we approached the flats east of Delta Creek, we entered an area of light snow, and the visibility dropped further, to around four miles. I eased the airplane down to about 1,000 feet AGL and pointed out some landmarks about three miles off the wings that confirmed we still had plenty of flight visibility.

Since airplanes don't fly sideways, I was scanning up ahead for a point to time to, that would "prove out" our three miles of forward visibility.

Time for a math problem. How long to cover three nautical miles at 100 knots groundspeed? One minute and 42 seconds. (Good flying is sometimes more good headwork than handwork.)

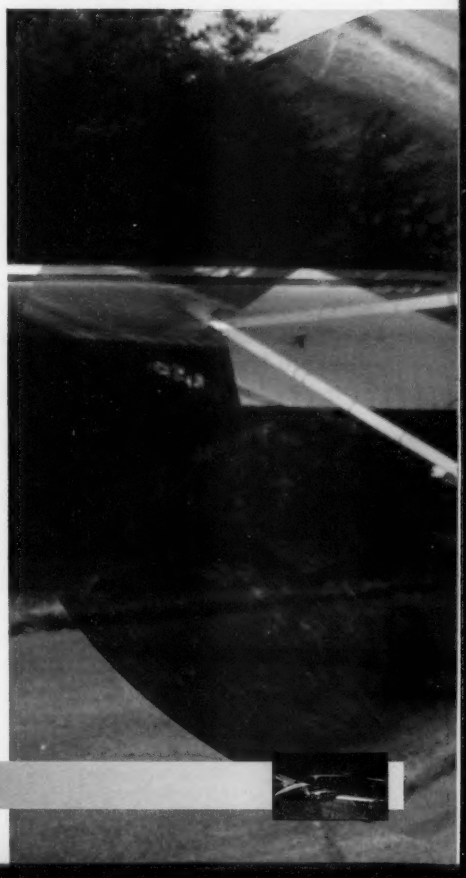
Almost immediately I realized that I didn't need my watch to know that we didn't have three miles of visibility in front of the airplane. Yes, I know that in uncontrolled airspace, you are legal down to one mile, but I've only got about 3,500 hours of flight time, so one mile is way below my personal VFR minimums. It was time to abort.

Piece of cake; just an easy turn back to the left towards the river and the clear air I had just departed.

The trouble was that as I rolled out of my turn, the black spruce trees that normally stand out so starkly against the white snow disappeared into a swirl of heavy snow and clouds. I was shocked by the fact that I was now completely enveloped in instrument flight conditions, less than 1,000 feet above the ground.

The airplane I was flying was theoretically IFR capable, but I knew it had not been certified recently. Also, although I'm an Air Force-trained pilot and hold a commercial license and instrument rating, I hadn't bothered to stay up to speed with my instrument currency. As if to prove that point, I found my airspeed increasing and altimeter decreasing. Even worse, I had vertigo. I was in trouble.

First, I said the two words every dying pilot has said the world over; then, I started fighting for the lives of my passenger and myself. I gave up



looking for any outside reference and concentrated on my attitude indicator and the performance instruments. I knew that I didn't have long to reverse the downward trend, so I got the wings level with reference to the attitude indicator. I had to hope that that little attitude indicator, which had been so long neglected, was working properly. It appeared to be. I quickly pegged the vertical speed indicator on the positive side and got the altimeter winding up in a clockwise direction.

In other words, as yet unknown to me, I had overcorrected the downward trend and was on my way to a power on, nose-high stall in the weather.

Just when I was beginning to believe that we were going to live, the cadet calmly announced, "We're going down." I began to explain that the opposite was true by calling his attention to the expert testimony of the vertical speed indicator and altimeter. He then explained that he was talking about the airspeed. Yikes!

Yes, we were still in a 172, not a muscle jet, and it wasn't going to remain in the glorious leap into the vertical for long. The young man had remembered the duties I had assigned him in my briefing, and, at a critical point in the flight, he pointed out a vital piece of information. We were at the minimum airspeed I had told him to look out for.

It was about here that I finally transitioned to controlled IFR flight and got all of the pieces of the puzzle back into my cross-check. I declared an emergency with Fairbanks Approach. They were great. Even though the controller didn't have me on radar yet, he fed me vectors, minimum altitudes, ILS frequencies—everything I needed to get home. All I had to do was fly. I flew a long time (approximately 20 miles) before I broke back out into the clear air that I was sure was so close behind when I started my 180.

As you might imagine, I've spent a fair amount of time contemplating how this happened and what I could have done better.

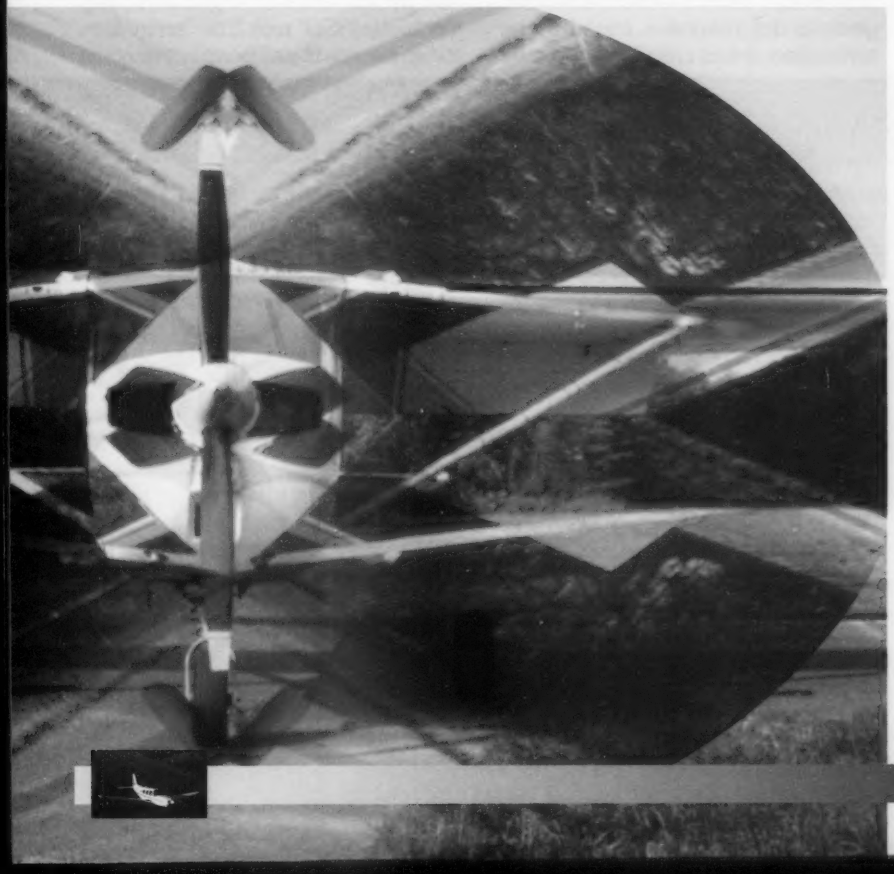
First of all, I have never seen weather deteriorate so rapidly. My experience includes six years of Alaskan flying and seven years in the murk of northern Europe. The scattered wisps of ground fog and patches of low stratus were a clue that the temperature and dew point may have been critically close. I now believe that this was the case and that helps explain the sudden change in the weather conditions. I made what I considered at the time to be a conservative and timely decision to abort and still got caught.

Second, I didn't make a smooth transition to IFR flight. This was caused by my lack of recent instrument practice as much as it was by the fact that I was taken by surprise. I would have been far better served to fly with throttle and trim, rather than muscling the bird around by hand. This is especially true for a pilot with vertigo, which may be assumed in this type of situation. Additionally, I should have paid attention sooner to all of the performance instruments (vertical speed, altimeter, and airspeed indicator). I've resolved to make my next flight an instrument refresher with an instructor.

I did do some things right. A thorough flight plan gave me confidence that I knew where the high ground was. By keeping up with the navigation, I knew which way to turn and how high I had to climb. Making the cadet a contributing part of my crew rather than a joy riding passenger probably saved our lives. I always assign "crew" tasks to passengers. Even a child can play the "lookout for other airplanes" game and help avoid a midair collision.

Finally, I declared the emergency with Fairbanks Approach. Not only did they take a load of cockpit duties off my back, they kept me from running into other IFR traffic that might have been legally rooting around in the clouds.

My advice is, don't crowd the weather. If your aircraft is IFR capable, keep it certified. Attain and keep your IFR skills sharp and ready to use. You can spend your money on training and maintenance, or you can spend it on a funeral.



Mr. Barnett is the Operations Director for Lockheed Martin at Eielson AFB. He is also a volunteer Aviation Safety Counselor in Alaska's Aviation Safety Program.

L A H S O

For those not familiar with LAHSO (it sounds like lasso), the acronym stands for "Land and Hold Short Operations" and is an air traffic procedure that might be coming to your local towered airport or in use at an airport where you might be landing.

LAHSO was developed based on the operational experiences gained from the Simultaneous Operations on Intersecting Runways or SOIR procedure. SOIR first began in 1968 and is currently in use at more than 200 airports and more than 850 intersecting runway combinations. Designed to reduce delays and increase capacity, LAHSO allows controllers at specified airports to issue landing clearances to aircraft to land and hold short on an intersecting runway, taxiway, a predetermined point, or an approach/departure flightpath while aircraft or vehicles cross the runway beyond the hold-short line.

Before a LAHSO procedure can be approved at a given airport, airport management must comply with the requirements of FAA Order 7110.114, *Land and Hold Short Operations* (LAHSO). The order requires that designated signage, lights, and other required markings be installed on the proposed runways and points to be used for LAHSO. In addition, the runways must meet minimum length, friction levels, and environmental conditions as outlined in the Order for LAHSO operations to be conducted. The Order also lists the landing distances for aircraft currently flying that are authorized for LAHSO operations. For aircraft not listed, such as experimental or homebuilt aircraft, they may also be authorized to do LAHSO if their pilots can determine beforehand that they can safely stop in the distance allowed.

When any of the required conditions are compromised by weather, equipment, or other reasons that might affect safety, ATC will terminate LAHSO procedures.

Pilots will be informed that LAHSO operations are in effect by either ATIS or the controller upon initial contact. Pilots in closed traffic operations also need to be advised once that LAHSO is in effect. Traffic information shall be given and a readback shall be obtained from the landing aircraft issued a LAHSO clearance. An acknowledgment from the vehicle or aircraft crossing the LAHSO runway shall be received as part of the procedure.

Landing or departing aircraft are not authorized beyond the hold-short point. Aircraft or vehicles are only allowed to cross the portion of the runway surface beyond the hold-short point. Since there may be an aircraft or vehicle crossing beyond the hold-short point, it is critical that any pilot accepting a LAHSO clearance be able to comply with the clearance and stop before the designated point on the airport. If the pilot doesn't understand or can't comply with a LAHSO clearance, the pilot must NOT accept it.

For more information on LAHSO, you can review the *Aeronautical Information Manual* (AIM), section 4-3-11, *Pilot Responsibilities When Conducting Land and Hold Short Operations (LAHSO). The January 1998 issue of AIM will contain for the first time "authorized LAHSO" with 20% "safety factor" to be used by all pilots.*

I HAVE A GPS RECEIVER: NOW WH

We think the following is a good reminder of the importance of pilotage, situational awareness, and knowing how to operate your GPS equipment properly. The information is from a NASA Aviation Safety Reporting System (ASRS) Alert Bulletin sent to the FAA's Aviation Safety Program. We are reprinting the Alert Bulletin in its entirety.

"We recently received an ASRS report describing a safety concern which may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

"ASRS has received several pilot reports concerning GPS navigation incidents. In summary, the reports indicate that some pilots lack specialized GPS training and fail to revert to backup modes of navigation. One reporter noted that deteriorating weather forced their flight to descend below VOR navigational coverage. The reporter attempted to reprogram his portable GPS to deviate to a nearby airport, but was unable to insert the airport's identifier into the database. A second airport was also attempted with the same results. The pilot then visually sighted an airport and landed. Another reporter claims that he inadvertently entered the Mobile (MOB), AL, ATA and landed without a clearance, believing he was landing at Pascagoula (M50), MS. The pilot believes that he inadvertently programmed a previous waypoint while scrolling through the information page for M50 airport data. Another reporter stated that he entered R-2503B because of his reliance on his GPS moving map indicator. The reporter thought that he was navigating around the restricted area. ATC Radar confirmed airspace penetration."

FAA Aviation News has asked NASA ASRS to keep us informed of similar reports so we can reprint them to help other pilots avoid similar mistakes.

We think this Alert Bulletin shows the importance of a pilot always knowing where he or she is at all times. As we have reported in past articles, the

The Aviation Safety Counselor Program

Accidents are caused and, therefore, preventable

by Jim Trusty

The role of the FAA's Aviation Safety Program and the people who volunteer as Aviation Safety Counselors needs to be defined and explained so that everyone has a better understanding of the how, what, who, when, and why.

Aviation Safety Counselors are appointed by the Safety Program Manager at the local Flight Standards District Office for a period of one year. They are selected on the basis of their knowledge regarding aviation, a high level of interest in aviation safety, respect within the airman community, and the public trust they have gained through professional abilities. An appointment as a counselor does not grant authority to that person to act, at any time, as an official representative of the FAA. A counselor's services should be made available to any person having an apparent need for assistance or guidance.

Aviation Safety Counselors fill a need and provide a much appreciated service to the aviation community. Although each FSDO has a Safety Program Manager (SPM), one person often cannot cover the entire district. Counselors can now act in the SPM's behalf and, with the guidance and supervision of the SPM, present bigger and more complex safety meetings. Counselors also arrange for meeting places, speakers, refreshments, mail-outs, door prizes, advertising, and everything else concerning a particular meeting or event.

Who are these counselors? Usually local pilots, flight instructors, FBO managers, and other members of the general public who are concerned with aviation safety.

Why do they give their time and effort for FREE? Most people in aviation are not greatly concerned with the amount of money they make. Besides, how can you put a price on safety?

Why are they willing to give of their time to the FAA? The Aviation Safety Counselor Program allows members of the aviation community to provide assistance and input in the administration of the FAA safety program in their local area. Somewhere in the United States, counselors conduct or assist in the presentation of safety program seminars and make it possible each year for over 800,000 aviation enthusiasts to attend a program of their choice—free of charge.

But, again, why volunteer? It surely isn't for the money! Every Aviation Safety Counselor I have met has demonstrated an interest above and beyond flying. They share an interest in making aviation in general safer and the pilots involved more aware of the ever-changing rules and regulations. It also allows them, in some cases, to help an airman at odds with the FAA.

So, come out to the next meeting advertised in your area and start participating in the WINGS, PACE, or Maintenance Technician Awards Programs. Make a contribution of time and/or resources to the next seminar.

Better yet, become an Aviation Safety Counselor!

Mr. Trusty, ATP/CFII, is an Aviation Safety Counselor for the Nashville (TN) FSDO. He is also the 1997 National Flight Instructor of the Year.

ERE AM I?

VFR pilot is responsible for proper pilotage when operating VFR-only GPS receivers.

For pilots not familiar with the NASA ASRS program, it is an FAA-funded program designed to permit all airmen (as defined by FAR 1) to report safety issues and problems to a neutral party (NASA) with anonymity for the reporter. The program also offers waivers of certain disciplinary actions against persons who file timely written reports. The *Aeronautical Information Manual* (AIM) Section 6, Safety, Accident, and Hazard Reports, Paragraph 7-6-1, Aviation Safety Reporting Program, and Advisory Circular (AC) 00-46, "Aviation Safety Reporting Program," provide more details on the ASRS program.

PUBLIC AIRCRAFT

by Gene Kirkendall and Judith Lotz

"The only segment of non-military aviation in the USA to be exempted from Federal oversight by the Air Commerce Act of 1926 is 'public aircraft.'" This statement, which relates a bit of history significant to the aviation world, was repeated more than once at a government-industry Aviation Parts Forum held recently in Washington, DC. Sponsored by the **Interagency Committee for Aviation Policy (ICAP)**, this Aviation Parts Forum put the spotlight on management of aircraft parts in the public aviation sector. The Forum, which attracted an international audience, was only one of many conferences and other services that the ICAP and its sponsor, the General Services Administration (GSA), have provided to public aviators over the past eight years. Together since 1989, the ICAP and GSA have had a mandate to provide oversight and guidance for public aviation, which includes the varied flight programs run by Federal civilian agencies in the performance of their governmental missions. The ICAP's mandate does not legally extend to state and county/municipal governmental agencies whose aircraft are also part of the public fleet; however, a majority of these agencies voluntarily participate in ICAP programs.

Although some public aircraft operators conduct their operations under FAR Part 91 (some may also be certified for operations under Parts 121 or 135), the bulk of public aircraft operations have been exempt—since 1926— from complying with most of the regulatory and safety requirements that evolved from the aviation statutes. Back in the 1920's, the public fleet consisted of just a few small airplanes. Today, the Federal agencies alone fly 1,600 aircraft—from recycled Hueys to major jets—with annual operating budgets totaling about $1 billion. For more than a half century, public aviators operated their growing and increasingly diversified fleets with little or no oversight. In the 1980's, however, findings of the General Accounting Office and others surfaced concerns about the safety and efficiency of public aviation. In response to these concerns, the Office of Management and Budget (OMB) issued Circular A-126 prescribing guidance for governmental agencies' aircraft programs.

When OMB revised Circular A-126 in 1989, they directed the GSA to set up a program to provide general oversight of agencies' aircraft operations and to create an interagency committee that would advise GSA on policy matters. Following OMB's direction, GSA established the ICAP, whose members include representatives from 18 Federal agencies (including the Department of Defense) and which is chartered to advise GSA on policy for improving the safety, effectiveness, and efficiency of public aviation.

In addition to sponsoring national conferences and symposia such as the Aviation Parts Forum mentioned above, the ICAP actively engages the entire public aviation community on a wide range of aviation management issues. Because the ICAP's chief mission is to advise on policy, it has chartered several subcommittees to focus on the various aspects of aviation management (i.e., safety and training; airworthiness and operations; acquisition, use, and disposal; data management; communications; law enforcement). Through these subcommittees, the ICAP has accomplished or is working on numerous projects. The following are some examples of the ICAP's past efforts:

- Assisting public aviators in complying with new laws and FAA safety regulations.
- Developing (and now upgrading) the Federal Aviation Management Information System (FAMIS), which tracks senior Federal officials' travel on government planes and gathers governmentwide information on the size, cost, and usage of the Federally-owned fleet as well as of Federal contract/rental aircraft.
- Getting governmentwide agreement to definitions and specifications for a Common Aviation Management Information System, which the FAA and the Department of Energy are now using to develop prototype aviation management systems at the agency level.
- Developing a cost accounting guide (including cost elements and costing methodology) for public aviation.
- Publishing helicopter inspection planning guides for surplus military aircraft.
- Writing and revising Federal Property Management Regulations that relate to public aviation (including recent changes to guidance on the exchange, sale, and disposal of aircraft parts and ground equipment).
- Working with the Transportation Safety Institute and others to ensure that public aviators and managers can get superior training that targets their needs.
- Publishing guidelines for developing operators' and maintenance manuals.

The ICAP is currently spearheading a number of significant new programs, including the following:

- Fleet Modernization Planning 2000, which involves life cycle planning for aircraft acquisition by the Federal (and other public) agencies. The ICAP has developed a Fleet Modernization Planning Guide and will offer several hands-on planning workshops, the first of which was held in August 1997.
- A study to identify Effectiveness and Efficiency Performance Measures for public aviation. This effort, which is unprecedented, is involving the Federal agencies in close scrutiny of their own current practices and in benchmarking the best practices relevant to their

missions. Agency managers will use the results of this study to support their modernization planning efforts as well as to improve their general operations.

- New revisions to regulations governing the exchange/sale of aircraft to help Federal agencies upgrade their fleets while reducing inventories and costs.
- A proposed Part 92 to the FAR, which would bring public aviation under the FAA's umbrella with rules specifically tailored to the civilian government's unusual aircraft and missions.
- A special Federal Aviation Advisory Committee, led by one of the nation's top authorities on aviation (VADM Robert Dunn, USN, Ret.) and sponsored by GSA, to conduct a complete review of public aviation regulations/guidance and a comprehensive examination of the roles, structures, and missions of the regulatory bodies governing public aviation.

FAA and the Department of Transportation (DOT) are both among the Federal agencies represented on the ICAP. As members of the ICAP itself, Mr. Ed Fell (Manager, Aircraft Program Policy and Plans Staff) represents the FAA, and Mr. Richard Pemberton (Office of the Secretary, Administrative Management) participates for DOT. Mr. Gene M. Kirkendall, Sr. Aviation Safety Inspector in the Air Transportation Division of FAA, chairs the ICAP's Safety Standards and Training Subcommittee, which is key to carrying out the ICAP's mission.

Mr. Kirkendall and his subcommittee have a number of important initiatives ongoing, including the Aviation Resource Management Survey (ARMS) program. Public agencies may voluntarily request ARMS assessments from the ICAP to get independent appraisals of all aspects of their safety, operations, personnel, and facilities. Over the past four years, the ICAP has successfully conducted 13 ARMS for public agencies (with one more ongoing), helping them make substantial improvements in their over-all programs. The ICAP's Safety and Training Subcommittee is also working on a revision to CFR Part 191-37.11 (Accident and Incident Reporting and Investigation), which is required by Public Law 103-411. This revised regulation will guide agencies in developing aircraft accident and incident response plans and in working with the National Transportation Safety Board (NTSB) on accident investigation and reporting.

Other experts from FAA and DOT frequently advise and assist the ICAP and GSA on a range of technical matters. At the ICAP's recent Aviation Parts Forum, several people from FAA and DOT were featured speakers and panel members:

- Mr. Fran Favarra, Program Manager in the Aircraft Certification Service, FAA, reported on the draft Advisory Circular governing the eligibility and evaluation of military flight safety critical aircraft parts, engines, and propellers for use on FAA type-certificated products. Because public aviators are using a large volume of military surplus aircraft and parts, the issues involved with flight safety critical material were of great interest to Forum participants.
- Mr. Ken Reilly, Manager of the Suspected Unapproved Parts Program, FAA, gave a thorough description of FAA's program to eliminate the use of unapproved parts. How to avoid selling, buying, using, or disposing of unapproved parts were the hot topics of the Forum, and FAA's contributions to information-sharing and discussion were crucial.
- Mr. Harry Schaefer, National Coordinator for Unapproved Parts, DOT, addressed the problem of unapproved parts from the criminal investigation and prosecution perspective, giving Forum participants valuable precautions and tips on detecting and handling suspected unapproved parts.

Over the years, the ICAP has broadened its scope of interest and its sense of community to focus both internal and external attention on issues critical to public aviation. Public aviators for the most part have highly unusual and often dangerous missions, and they frequently fly specially modified aircraft. Their operations run the gamut from rescuing animals (e.g., shooting nets over large animals from very low-flying helicopters in mountainous terrain) to transporting groups of high-risk prisoners (e.g., for the U.S. Marshals Service) to conducting various kinds of research and development (e.g., for the Department of Energy, National Oceanographic and Atmospheric Administration, and the Department of Agriculture). Diverse kinds of fire fighting and law enforcement efforts make up a large segment of public aviation. These aviation programs are absolutely essential to our nation, and the agencies that operate them are continually striving through the ICAP to do a better, safer, more economical job.

The boundaries between the public, military, and civil/commercial aviation sectors (and the industries that support them) are porous—with aircraft, material, personnel, and missions moving or cross-fertilizing from one sector to another depending on need and circumstance. The ICAP and GSA, its sponsoring agency, believe that open communication across the boundaries of all sectors is indispensable. The ICAP and GSA welcome comments and questions from all quarters.

For more information about the ICAP, about the public agencies' aviation programs, or about the regulations governing public aviation, please write to or call:

Ms. Judith Lotz, Aircraft
Management Policy Division (MTA)
General Services Administration
1800 F Street, N.W.,
Washington, DC 20405
202-208-4101
(fax 202-501-2149)
E-mail: judith.lotz@gsa.gov.

Also, be sure to visit the ICAP's Homepage on the Worldwide Web at: http://www.policyworks.gov/aircraft.

THE FUTURE OF FAA FUNDING

by Giovanni Carnaroli

Financial reform of the FAA's funding has been a "hot" political issue, and the Gore Commission's recommendation to fund the FAA by user fees has ignited much debate. Because we are the official magazine of the FAA, we are publishing the FAA's side of this debate, but we have tried to be balanced and offer the pro's and con's of the proposed solutions to the funding problem. We realize that many will disagree, but we ask that you read on and consider what has been offered below as edification. If you have comments on the issue of future financing of the FAA, please direct them to (202) 267-7550. —Editor

Without financial reform, the FAA could face a major funding short fall, one that threatens modernization of the aviation system as we focus increasingly on maintaining the safety and security of the existing system. In addition, the funding we now receive is unstable: The aviation excise taxes were allowed to expire at the end of 1995, and, though reinstated with some delay, they again expired on December 31, 1996. They have now been "re-reinstated" as of March 7, 1997 but will expire yet again on September 30. We cannot plan effectively without some idea of resources.

In short, the FAA needs to move to new ways of financing that are fair to the aviation community, the flying public, and the taxpayer and that provide adequate, stable, predictable funding for FAA programs that support a safe, secure, efficient aviation system.

A long-term system of financing the airport and airway system is needed because FY 1998 appropriations level will deplete the uncommitted balance of the Aviation Trust Fund at the beginning of calendar year 1998 unless there is a rapid renewal of aviation excise taxes. What this means is that FAA faces a shortfall in long-term financing in the amount of $12 billion. Therefore, we need to identify adequate revenues to finance long-term requirements. These revenues should be provided in a manner that allows funds collected to be spent on aviation free of current constraints imposed by balancing the Federal budget.

While a long-term extension of the aviation excise taxes would stave off the depletion of the Aviation (Airport and Airway) Trust Fund, the FAA needs a financing program that promotes a stable, adequate, and predictable flow of funds, and the FAA needs to budget and spend to meet aviation industry demand levels without regard to the "discretionary cap" in Federal spending. Revenues provided by aviation excise taxes will continue to be constrained by the "discretionary cap."

The White House Commission on Aviation Safety and Security (better known as the Gore Commission) called, among other things, for user funding of the national airspace system (NAS). President Clinton accepted the commission's final report as a clear plan of action to raise safety, security, and air traffic control system standards. This needs to be accomplished while protecting general aviation users of the NAS from being adversely impacted by any new financing system.

User charges as opposed to taxes seems to be an alternative. It appears to be the most promising way—under increasing budget limitations—by which the FAA will be able to provide the American public with the safe and efficient service it expects. To the extent that the FAA is able to structure fees equitably, the funding liability *would be borne by all system users in direct proportion to their respective use of the air traffic control system and other FAA services.*

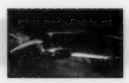
From the FAA's perspective there may be several advantages to user fees:

- fees can be used to generate sufficient funds to meet future FAA requirements
- user fees are treated as offsetting collections and are not subject to the discretionary spending cap
- pricing of each service helps promote efficient use of economic resources
- fees improve equity in that they eliminate cross subsidies, recover costs from service beneficiaries, and avoid general taxes

An alternative, offered by the seven-member Coalition for Fair FAA Funding, would replace the passenger ticket tax on domestic enplanements with the following three-part fee formula:

- $4.50 per originating passenger
- $2.00 per seat on jet aircraft with 71 or more seats and $1.00 per seat on jets and turboprop aircraft with 70 or fewer seats
- $0.005 per nonstop passenger mile

The FAA is concerned with the competitive impacts the proposal would have on the airline industry and the flying public. Because the coalition's member airlines operate hub-and-spoke systems, the proposed fee system would shift the financial burden away from the larger airlines and onto their competitors. Under this proposal, the General Accounting Office estimates that the cost to the coalition's members would decrease by nearly $600 million, while the cost to



low-fare and small airlines would increase by nearly $550 million. Such a shift in cost would undoubtedly change the competitive nature of the industry and could adversely impact the flying public. The proposal would also shift regional fares. On the one hand, consumers in regions such as the West and Southwest that have benefited from the entry of low-fare airlines could pay more than they do under the current ticket tax. On the other hand, consumers in the East and Upper Midwest, who have not experienced the entry of low-fare airlines to the same extent, could pay relatively less. The long-term implications of the proposal need to be examined in detail.

It is evident that users are not in agreement on whether to shift from the current user tax system to fees for specific services. General aviation and low-cost carriers have been extremely opposed to proposed legislation that would result in user fees being imposed on the aviation community as the primary means of funding the FAA. Users also question the degree to which the cost of FAA services should be paid by the aviation community versus the general taxpayer. There is further disagreement concerning the degree of responsibility of particular types of users.

The reality is that users must agree to pay for Federal airport and airway services if they are to continue as we know them. Hopefully, the National Civil Aviation Review Commission (NCARC) will provide a set of recommendations on financing which will be supported by the aviation community and accepted by Congress. If the NCARC can agree on at least the outline of how the FAA should be funded, there is a good chance Congress will enact something that provides stable, adequate, fair funding. If disagreement continues, the results are unclear.

Mr. Carnaroli is an economist in the FAA's Office of Aviation Plans and Policy, Policy and Systems Analysis Division, FAA Headquarters, Washington, DC.

GARVEY NOMINATION TO LEAD FAA RECEIVES SENATE COMMITTEE NOD

by Mickey Hostetler

On July 24 Ms. Jane Garvey's nomination to be the Nation's 14th Federal Aviation Administrator was approved unanimously by the U.S. Senate Committee on Commerce, Science, and Transportation. The next step--approval by the Senate--as of press time was scheduled for a vote before the Senate's recess on August 4.

Ms. Garvey was nominated on June 11 by President Clinton, who praised her as "...the right person to lead the FAA into the 21st century. Her proven managerial and financial skills and her track record for innovation and reform will serve the FAA well as it prepares to meet the challenges of maintaining a safe and secure aviation system during a time of dynamic growth."

Ms. Garvey most recently served as Acting Administrator of the Department of Transportation's Federal Highway Administration (FHWA), a position she assumed when its Administrator, Rodney Slater, was named Secretary of Transportation. At FHWA Ms. Garvey led an agency with a $20 billion annual budget and offices in every state. She had been the Deputy Administrator since April 1993 and helped to place safety at the top of the FHWA's agenda, eliminating hazardous highway-rail grade crossings, upgrading truck safety standards, and emphasizing safety first in infrastructure and technology investments. Ms. Garvey helped to make the FHWA a leader in reinventing government and improving customer service, eliminating or simplifying 30 percent of its regulations and downsizing its workforce by 13 percent.

Before joining the FHWA, Ms. Garvey was Director of Aviation Services at Boston's Logan International Airport. At Logan she managed airport operations, oversaw the deployment of modernized air traffic control and prototype safety systems to prevent runway collisions, and planned the airport's $1 billion modernization, including terminal expansions and a new intermodal transit connector. Ms. Garvey also served as Massachusetts Commissioner of Public Works from 1988 to 1991, and as Associate Commissioner from 1983 to 1988, supervising the state's multibillion-dollar highway construction program, the eighth largest in the Nation.

A native of Massachusetts, Ms. Garvey earned her Bachelor's degree from Mount Saint Mary College, her Master's degree from Mount Holyoke College, and participated in Harvard University's Fellowship Program for Public Leaders. Ms. Garvey and her husband, Robert, have a son, Matthew, and a daughter, Kelly.

Upon being nominated by President Clinton, Ms. Garvey said that she was honored that the President had asked her to take on a new challenge, one of such importance to America's future. "Maintaining a safe and secure air travel system in a period of vigorous growth is crucial," she said, "and I'm confident that, in cooperation with Congress and our partners in the aviation industry, the FAA can make the world's safest skies even safer. I look forward to working with Vice President Gore, Secretary Slater, and the fine men and women of DOT and the FAA in getting the job done, carrying the President's charge, and leading the FAA into the 21st century."

Recent legislation made the FAA Administrator's position a five-year post.

Instrument Flight Questions

There are two questions around our local airport that have been the center of discussion and dissension.

Question 1. Situation: IFR aircraft with no special equipment: Equipment code "Slash (/)A." All IFR requirements for aircraft and pilot are met. The point of departure and destination exceed the reception limits of the aircraft's VOR's (such as Lubbock, TX, to Palacios, TX, 400+ NM). An IFR flight plan is filed with route of flight being direct and in the remarks section the comment "dead reckoning direct" is listed. The IFR clearance is received, "cleared as filed. Maintain X,000."

The question is can you use your VFR-only GPS as a dead reckoning computer to obtain dead reckoning information and computing wind correction angle and ground speed to dead reckon navigate the area between the point of departure and the destination that VOR reception is not possible? The VFR-only GPS is utilized only as a dead reckoning computer to dead reckon navigate to within reception distance of the destination VOR.

Question 2. A private pilot working on the instrument rating needs more flight time than the required 15 hours with a CFII. The flight instructor is not a CFII. The flight instructor is a current CFI and a current instrument pilot. Can this instructor give the student instrument training under actual instrument conditions and then release the student to a CFII for the last 15 hours and the endorsement for the instrument check ride?

Steve Anglin
Lubbock, TX

Answer 1: Although VFR-only GPS units are not approved for IFR navigation use, we know of no reason why it or any other handheld computer or navigational slide rule cannot be used to assist the pilot in navigating between any two points under the conditions stated.

Answer 2: The instrument student needs a minimum of 40 hours of instrument training of which only 15 hours need be given by an appropriately rated instrument instructor (CFII). A CFII also has to sign the student's recommendation for the instrument checkride. The student may fly with the CFI under actual instrument conditions provided the CFI is the pilot in command (PIC) and files the IFR flight plan as PIC. The flight time if logged as instruction by the CFI cannot be used by the student to meet the 15 hour CFII instructional requirement, although it may be used to meet the minimum IFR experience requirement. The student can also fly under similar conditions with other instrument rated pilots who meet all of the requirements to be PIC. However, unless the student is rated in the aircraft flown, he or she may not credit the time toward a certificate or rating under FAR Part 61.

Things That Bug Me

This is a compilation of three subjects which have been bugging me for quite a few years.

Reference your MAY/JUNE 1997 publication "TO FLY OR NOT TO FLY" carries the almost perpetual error in the "airworthy checklist" - Biannual test of transponder and Biannual test of altimeter.

Biennial would be more appropriate but that does not apply since the inspections must have been conducted within the past 24 calendar months.

Continuing the Walk-Around Inspection: Just because half of the flight instructors and their students continually use the phrase "N" number does not make it correct terminology. I have not yet seen it used on the Certificate of Aircraft Registration - AC Form 8050. It's a silly phrase that has become so popular in these past twenty years but it's not correct nor should its use be encouraged in your magazine.

I find it inopportune for pilots to self-announce their positions or intentions in the vicinity of a nontowered airport referring to instrument approach procedures or positions; i.e., "Commencing back-course localizer approach," "Procedure turn, ADF Two One approach," "Outer Marker inbound ILS Three Six." I doubt that many student pilots and non-instrument rated pilots are familiar and have current approach charts to recognize the positions of the calling aircraft. I would think that the FAA would emphasize the usage of stated locations from the airport in miles and direction and announcements of intentions reference only the runways at that airport.

Gordon S. Hall
Memphis, TN

Both biannual and biennial can mean two years. The phrase "within 24 calendar months" would be more appropriate.

You're right about the airworthiness registration number. But the "N" number is the most common use of the term. The "N" also identifies the aircraft as a United States registered aircraft.

Good point. Although the aircraft may be complying with prescribed communications procedures for instrument flight, your suggestions would help notify non-local traffic of the inbound aircraft's position. Your point is also a good reason for pilots operating into or out of an airport to check their appropriate charts for the location of the nearest navigation aids so they have an idea of where traffic may be coming from.

Your comments also are a good reminder to all pilots that aircraft on instrument flight plans (IFR) in instrument meteorological conditions (IMC) may be flying IFR approaches into a nontowered airport while visual flight rule (VFR) traffic may be flying within the local pattern. All aircraft must comply with the "see and avoid" flight rules when able regardless of the type of flight rules they may be operating under.

Drift Correction Angles

The question concerns how much drift correction to apply to the outbound leg of a holding pattern. I have always used and taught (for 42 years) that when outbound in holding you double the inbound leg drift correction. The FAA *Instrument Flying Handbook*, AC 61-27C, in Chapter XII implies this method of correction. The Jeppesen-Sandersen *Instrument Rating Manual* Chapter 5 says to double the inbound wind correction angle for the outbound leg as does Kershner's *Instrument Flight Manual*. However, the *Aeronautical Information Manual* (AIM) 5-3-7, Holding, says when outbound you should triple the inbound drift correction. I am finding that written tests on this question are at variance, depending on the reference used. Which is correct, the FAA *Instrument Flying Handbook* or the AIM?

Bill Johnson
Auburn, AL

Both are correct. Doubling the wind correction angle has been the FAA recommended method for years. Tripling the wind correction angle referenced in the AIM is based upon a computer model. But as a result of your question, the computer model is being retested. If the retest proves that tripling the angle doesn't work, the AIM will be adjusted accordingly.

Although we all like "rule of thumb" answers such as doubling or even tripling the inbound wind correction angle, one US Air Force manual simply stated, "Wind Corrections. Allow for wind by applying corrections both to heading and timing during entry and while flying in the holding pattern. Having entered the holding pattern, on the second and subsequent arrivals over the fix, execute a turn to fly an outbound track which will most appropriately position the aircraft for the turns onto the inbound leg." The manual leaves it up to the pilot to determine, based upon wind speed and direction and aircraft speed, the amount of wind correction angle needed.

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463. INTERNET address: Dean.Chamberlain@faa.dot.gov

Varmint Protection

Could a person say that the mice in the carburetor that caused a forced landing "choked" to death? (*FAA Aviation News*, Jan/Feb 97)

On a more serious note, I have seen a fairly effective system for keeping varmints out of stored vehicles. It has been used by various owners of collector vehicles.

Shallow pans perhaps 24" square by 1 1/2" deep are prepared for each wheel. Into the center of these are placed blocks somewhat higher than the depth of the pans and of a size to support the footprint of the tires. The pans are then filled with water, or in cold climates fuel oil, to a depth of 3/4" or so. If oil is used blocks should probably be metal or covered with metal to prevent soaking up oil against the tires. With autos, the vehicle is jacked and the pans placed under each wheel with the tire resting on the blocks. Most small varmints won't cross the pan to get into the vehicle.

Jacking would not appear practical for airplanes, but it would seem small removable ramps could be used.

Stuart I. Faber
Cincinnati, OH

Thanks for the suggestion.

Auto Carb Ice?

Why don't we get carburetor ice in an automobile engine?

Tom Gallagher
Sayville, NY

Good question. There are several reasons. The location and mounting of the carburetor in the automobile are two. Normally an automobile carburetor is bolted on top of the engine's intake manifold. This location allows engine heat to help keep the carburetor warm. Since an automobile's engine compartment is normally a very compact space, the small space also helps to keep the carb warm. Another reason is many automobiles have a temperature sensitive carburetor air intake system that tries to keep the air going into the carb at a specified temperature. All of these factors help keep carb ice from forming in an automobile.

Logging Time

If two multi-engine pilots neither of whom have an airline transport pilot (ATP) certificate or a multi-engine flight instructor certificate (MEI) flew together on a 3.0 hour one way trip, and Pilot #1 flew the first half of the trip and Pilot #2 flew the second half, is it legal for both pilots to log 3.0 hours total multi-engine time, and each log 1.5 hour pilot in command (PIC) time?

Chad J. Bawcum
Via Internet

No. But each may log as PIC time the time each pilot was the sole manipulator of the controls for which the pilot is rated. After August 4, 1997, FAR § 61.51(e)(1) is the new rule section that applies.

THE CITATION X—MAKING AVIATION HISTORY

Earlier in this century, Robert J. Collier—a prominent publisher, patriot, sportsman, aviator, and early president of the Aero Club of America—proclaimed the idea that the flying machine should be unselfishly and rapidly developed to its ultimate potential for America's economic advancement and preservation. He was the first person to purchase an airplane from the Wright brothers for his personal use.

To encourage the positive aspects of aviation, in 1911 Collier commissioned a 525-pound bronze trophy representing the triumph of human beings over the natural forces of gravity and contrary winds. The central figure, having touched the bird and found its secrets, soars from Earth. When Collier died in 1918, the National Aeronautic Association (NAA), successor to the Aero Club of America, named the trophy after him.

Now, some 86 years later, the Citation X and its design team at Cessna have been awarded the prestigious Robert J. Collier Trophy—justly called the greatest and most prized of all aeronautical honors in America. Recognized specifically for "designing, testing, certifying, and placing into service the Citation X, the first commercial aircraft in U.S. aviation history to achieve a cruising speed of Mach .92," Cessna and the Citation X design team received this honor on February 26, 1997.

"This award is a wonderful tribute to the Citation X design team and to everyone at Cessna who has worked so hard to put the Citation X in production and support the initial deliveries," said Cessna Chairman Russ Meyer. "We are also deeply grateful to our Citation X customers who placed their confidence in us to design a totally new business jet with such preemptive performance."

Joining an elite list of 86 prior recipients of this annual award (none were given from 1917-1920 because of the war), including the FAA in 1995, the Citation X can climb direct to 43,000 feet in just 34 minutes at its maximum takeoff weight and is certified to fly as high as 51,000 feet. At 600 mph it can "run the mile" in a sensational six seconds.

Perhaps NAA President Steve Brown put it best when he said, "The Citation X has dramatically advanced the speed and altitude performance envelope of general aviation. This aircraft represents a significant breakthrough in aerodynamic efficiency at high, sub-sonic Mach numbers. The Citation X's advanced aerodynamic design permits the highest cruise speeds ever for a civilian aircraft other than Concorde."

Robert J. Collier would have been proud.

A "LOST" WRENCH

January 1997's PAMA Magazine, the publication of the Professional Aviation Maintenance Association, recently published the following item:

"The Flight Safety Foundation reports this episode of an accident which resulted from a 'lost' wrench. Shortly after takeoff from the Naval Air Station in Virginia Beach, VA, the pilot of a twin-jet Grumman A-6E attack aircraft ran into trouble. He reported hearing a loud explosion and saw a steady bright glow accompanied by a grinding noise from the left engine. Unable to return to the field, the pilot headed the aircraft over the Atlantic Ocean, barely clearing a hotel on the beach. The pilot and the bombardier-navigator ejected safely, but the $33 million aircraft crashed into the ocean.

"U.S. Navy divers were able to recover the wreckage of the aircraft, and subsequent investigation revealed a five-inch long wrench lodged inside the left engine. Further analysis disclosed that the wrench had been 'lost' four months earlier but had in fact been misplaced during maintenance and remained in the nose wheel well of the aircraft. The wrench apparently came loose during this takeoff and was ingested into the left engine where it destroyed most of the turbine engine blades, resulting in subsequent damage which severed hydraulic lines rendering the aircraft incapable of returning safely to base."

There are "tools" to help locate tools before they become FOD. One system is an audible locator that magnetizes ferrous tools permanently with a slight magnetic field. Then when the tool is "missing" a battery-powered detector probe connected to a headset locates it by sensing the magnetic field. Missing, magnetized tools can be detected even through the aircraft's skin and found quicker than a visual or tactile search—and there may be no need for costly teardowns. For further information contact FOD Technology Group at 1-(800) 648-0656.

NEXRAD EVOLUTION PROGRESS

The National Weather Service (NWS), the FAA, and the Department of Defense (DoD) are partners in a continuing evolution of the Next Generation Weather Radar (NEXRAD) through Product Improvement (NPI) projects. The goal of NPI is to incorporate advances in hydrometeorological science, and in radar and computer technology, to enhance NEXRAD's ability to meet the Agencies' mission goals while minimizing the costs of system maintenance. The current NPI project is rehosting the 1980's-era computer platforms with Open Systems compliant, standards based workstation technology. Coupling the NEXRAD radar subsystem with modern processing capacities will greatly enhance the capability to provide products tailored to the forecast and warning missions of the

individual NEXRAD agencies. Integration of the new NEXRAD capabilities at FAA Air Route Traffic Control Centers will begin with the first NEXRAD Open Systems deployments in 1999.

For those interested in tracking the progress of the "next generation" of NEXRAD, information will be updated periodically on the following NWS WEB pages:

http://ISL715.nws.noaa.gov:12530/Nexrad
http://www.nws.noaa.gov/modernize
http://www.osf.uoknor.edu

FAA NONTOWERED AIRPORT OPERATIONS REPRINT AVAILABLE FROM SPM's

Beginning with the March 1997 issue of *FAA Aviation News*, the FAA published a four-part series on operations at nontowered airports in response to the collision between an air carrier aircraft and a general aviation aircraft in Quincy, IL last November. The articles covered general philosophy about operating at nontowered airports, recommended standard traffic patterns, communications procedures at nontowered airports, and pilot collision avoidance responsibility. The four articles have been consolidated into an *FAA Aviation News Reprint*, "Operations at Nontowered Airports," and copies of the reprints are available through your Safety Program Manager at your local Flight Standards District Office. Each Safety Program Manager received 1,000 copies or more.

With a print run of 100,000 this 20-page reprint is nearly the size of a full issue of *FAA Aviation News*, is second only in circulation to the reprints on airspace reclassification, and is the first reprint issued by *FAA Aviation News* in four years.

EMBRY-RIDDLE WINS THE "SUPER BOWL" OF COLLEGIATE FLYING

If a "super bowl" of collegiate flying existed, it would be the annual National Intercollegiate Flying Association's safety conference (NIFA SAFECON). Similar in format to a track-and-field event, the conference features both flying and ground events. Airborne events included power-on landing, power-off landing, and visual navigation; grounds events encompassed computer accuracy, federal rules and regulations, pre-flight, simulator, and aircraft identification.

This year a total of 30 teams, already designated as regional champions, competed in NIFA SAFECON's nine events held May 3 in Battle Creek, MI. The Golden Eagles, the student flight team of Embry-Riddle Aeronautical University's (ERAU) Prescott, AZ, campus, won the national championship and took first place in flight events, competing in the Eagle One, a Cessna 150. The Golden Eagles also received first place for the safety award. The ERAU Daytona Beach campus' team, the Eagles, came in fourth.

ERAU's The Golden Eagles

SIMUFLITE AWARDED FAA'S FIRST PART 142 TRAINING CENTER CERTIFICATE

Charles C. Carson, II, SimuFlite president (second from right), is presented with FAA's first FAR Part 142 Training Center certificate by Walter H. Hunter, FAA aviation inspector-operations assistant manager (second from left). Fort Worth FSDO manager Bernard H. Mullins (left) and aviation safety inspector/training center program manager Larry G. Wilkinson (right) look on.

New Federal Aviation Regulation Part 142 (effective August 1) sets national standards for training centers that use aircraft simulators and flight training devices for pilot training, testing, and checking. SimuFlite is the first to meet these strict standards ruling facilities, curriculum, personnel, equipment, and record keeping.

U.S. AEROBATIC FOUNDATION TO RAFFLE OFF J-3 CUB

Have you ever dreamed of owning a J-3 Cub? Well, your dream may come true. As part of their increasing fund-raising efforts for the U.S. Aerobatic Teams, the U.S. Aerobatic Foundation (USAF), a non-profit organization, has purchased a freshly restored J-3 Cub for a limited ticket raffle. The program will be introduced at Oshkosh '97, and the winner will be announced at Oshkosh '98. The USAF plans to display the aircraft at Oshkosh, Sun 'n Fun, the AOPA Convention, and at least six to eight other trade and air shows.

In addition to the J-3 Cub, other prizes will include three aerobatic demonstration rides with a U.S. National Aerobatic Champion, three Garmin GPS 90 units, books, and videos. You will not have to be present at the drawing to win.

Purchase of the Cub was made possible by donations from many organizations. The airframe has been restored completely with an extensive list of new parts.

"We are enthused about this program," said USAF President Phil Knight. "Reaction to the concept has been extremely positive, and it's our belief that a lot of people will see it as an excellent way of helping out the U.S. Aerobatic Teams."

For information on obtaining raffle tickets, you may call (800) 678-USAF. Good luck!

The restored J-3 Cub

Editor's Runway

from the pen of Phyllis-Anne Duncan

I'm beginning to have a bit more admiration for the syndicated columnist who churns a feature out for daily publication. I only have to do "Editor's Runway" eight times a year, and I'm sitting here staring at the computer screen hoping for the words to form.

The other problem is this is the September issue—fall leading into winter—and I'm sitting here in DC in mid-July in the midst of a heat and humidity wave. Coming up with winter flying tips is a bit much for my heat-soaked brain to manage, but we'll give it a try.

Icing

In-flight icing and anti- and de-icing issues will be with us as long as there are winters, and we have published some very useful information in the past. Your local FAA Safety Program Manager is probably in the planning stage for his or her winter programs and seminars, so now would be a good time to check to see when winter flying issues will be addressed. At the very least, review our winter articles from 1995-1996 and 1996-1997 for icing safety information.

Cold Starting

It's probably also a good time to review cold start techniques for your aircraft, found in that trusty Pilot Operating Handbook or Airplane Flight Manual. When I was the safety pilot for a local flying club, I had to give an insurance check to a pilot who burned an aircraft up on the ground after overpriming it and not following the approved procedures for a cold start. The cold starting procedures are very detailed and will result in a good start most of the time if they are followed properly. If you're not successful, then, there is probably a mechanical problem you need to have addressed before flight.

Winter Survival Gear

Our resident survivalist, Associate Editor Dean Chamberlain, always reminds winter flyers to dress for where you might have to walk out of, not where you're going to. A winter survival kit with non-perishable food items, blankets, etc., can be assembled easily and won't add that much weight to the aircraft. Nor will a hand-held transceiver or back-up ELT. You want to improve your survival odds and the likelihood of your rescue before hypothermia sets in.

Checklists Again

Cold temperatures may tempt us not to pull out or to abbreviate the checklist, but the road of temptation is fraught with pitfalls. Checklists are a good way to practice crew resource management, even if you're the only crewmember, and following standard procedures and practices may save your life.

Winter and Your Aircraft

Now's the time as well to think about winterizing your aircraft, again, as per the manufacturer's recommendations. This could include switching to winter grade oil, installing a fresh battery, or checking the budget to see if you can afford to hangar it for the winter. In some parts of the country, winter engine pre-heating is almost a must, so if you're thinking about making that purchase or using the local FBO's services, follow the manufacturer's recommendations.

Winter and Pilot Proficiency

The cold weather drives some pilots inside for the winter. (Our faithful airworthiness counterparts don't have that luxury; they're out there in all kinds of weather.) Consequently, winter might be best spent reviewing the regulations—that "new" Part 61, remember—or reading up on approved techniques so that when Spring finally arrives, your knowledge won't be as rusty as your proficiency might be. There are lots and lots of aviation publications out there with interesting and timely material available all year long. Here's an appealing image of how to spend a cold winter afternoon: A nice crackling fire in the fireplace, the company of your favorite flying companion, and *FAA Aviation News*, of course! What more could you want? What's that? Get a life, Phyllis-Anne!

Actually, the next issue—October—will be an all-Hawaii flying issue, so you can imagine you're some place much warmer than our mainland winter will be.

Oddly enough, winter presents some of the best flying conditions—clear, stable air, panoramic visibility—if we could just get past the lowered temperatures!

Okay, we've suggested how to prepare your aircraft for winter, how to spend your non-flying time during winter, and reminded you that it's not too early to think about cold weather coming through. We even got in a checklist reminder and a push for *FAA Aviation News*. Not bad for writer's block.

'Til next time...

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Superintendent of Documents

Washington, D.C. 20402

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